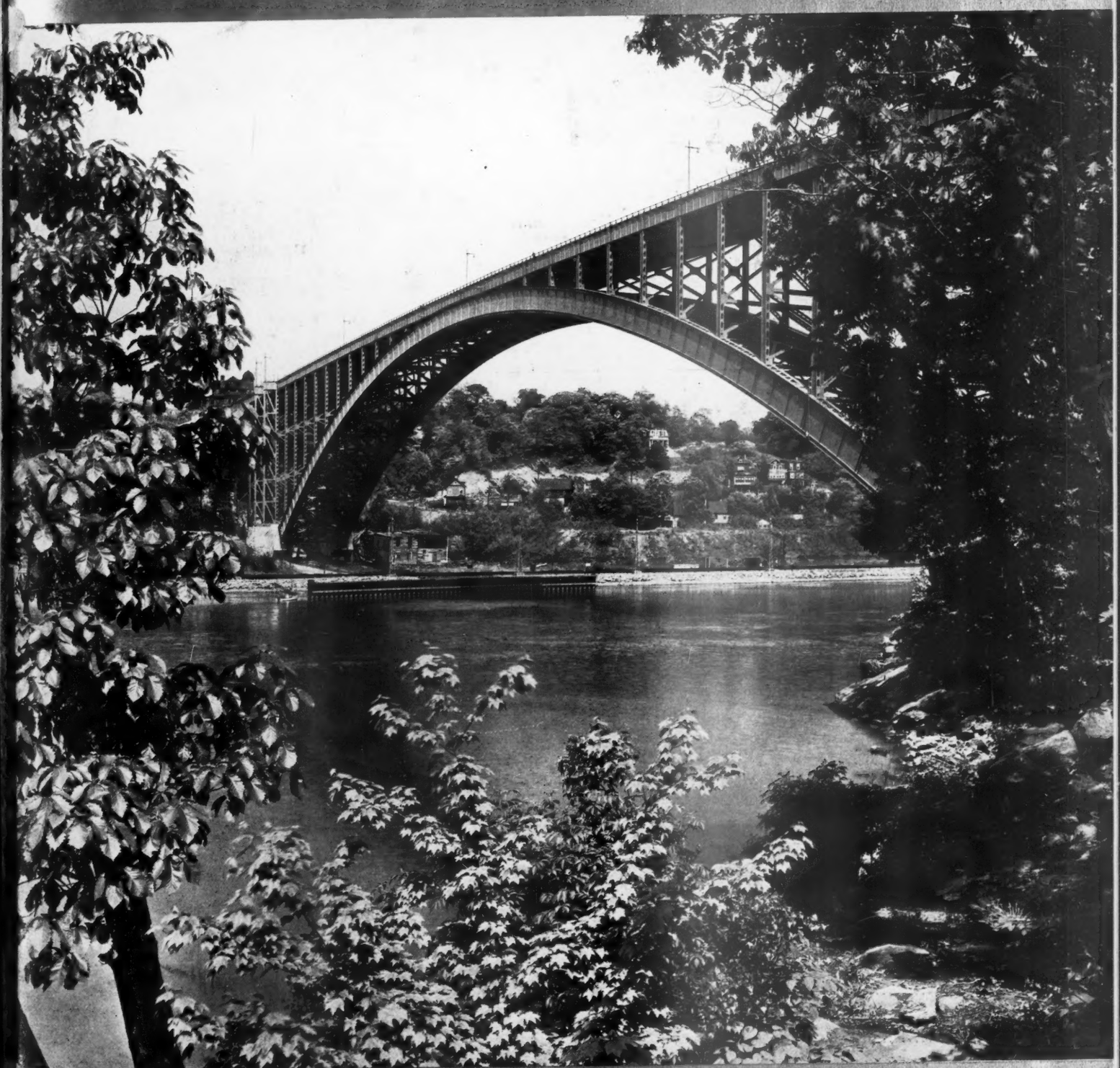
THE AMERICAN ENGINEER

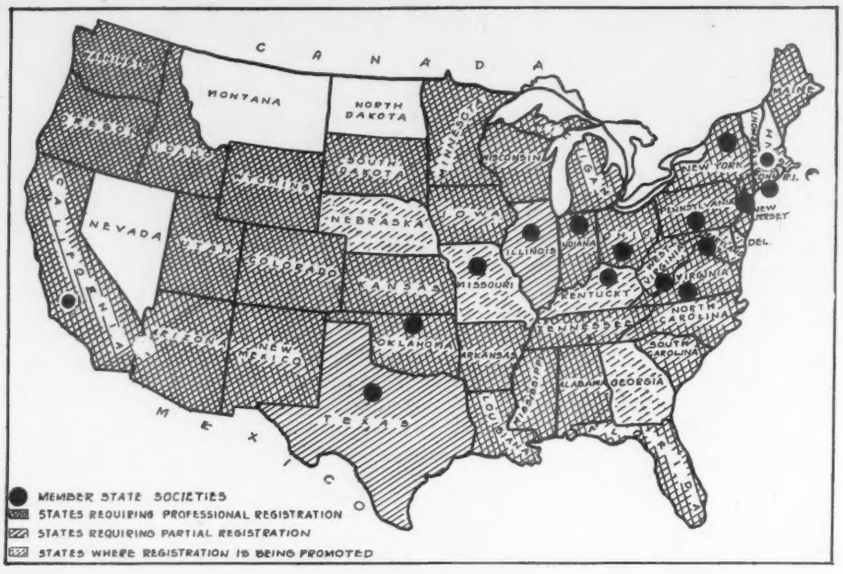


AUGUST, 1937

PUBLISHED BY

THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

Twenty-five Cents



The National Society of Professional Engineers

Headquarters

National Press Building — Washington, D. C.

OFFICERS

President
ARTHUR V. SHERIDAN
County Building
Bronx, N. Y.

Secretary
WILLARD S. CONLON
National Press Building
Washington, D. C.

Treasurer
WALTER L. SIMPSON
Powhatan Hotel
Washington, D. C.

Vice-President
PERRY T. FORD
1113 Wyandotte Building
Columbus, Ohio

Vice-President
H. J. FIXMER
207 City Hall
Chicago, Illinois

Vice-President
MORRIS GOODKIND
State Highway Department
Trenton, N. J.

Vice-President
CHARLES D. WATSON
Carter Oil Company
Tulsa, Okla.

MEMBER STATE SOCIETIES

OFFICERS AND DIRECTORS

Member State	President	Secretary	National Director
CALIFORNIA	FRED A. ROEMER 106 Federal Office Bldg. San Francisco, Calif.	HARRY PETERSON 1841 Bancroft Street San Leandro, Calif.	.....
CONNECTICUT	ALLEN HUBBARD 1109 Chapel Street New Haven, Connecticut	LEWIS C. SMITH 904 Quinnipiac Avenue New Haven, Connecticut	HARRY E. HARRIS 229 Thorme Street Bridgeport, Connecticut
DISTRICT OF COLUMBIA	WALTER L. SIMPSON Hotel Powatan Washington. D. C.	LEO HAYES CLEARY 2726 Connecticut Av., N. W. Washington, D. C.	JOHN W. DUNHAM 803 Quintana Place N. W. Washington, D. C.
ILLINOIS	PAUL E. GREEN 816 Wrigley Building Chicago, Illinois	H. E. BABBITT 204 Engineering Hall Urbana. Illinois	FRED C. LOHMANN 509 West Charles St., Champaign, Ill.
INDIANA	SULTAN G. COHEN 5831 North Penn Street Indianapolis, Indiana	J. V. SMYTHE State House Annex Indianapolis, Ind.	EARL L. CARTER 814 Electric Building Indianapolis, Ind.
KENTUCKY	GEO. H. SAGER, JR 1415 St. James Court Louisville, Kentucky	C. S. CROUSE University of Kentucky Lexington, Kentucky	B. M. BRIGMAN University of Louisville Louisville, Kentucky
LOUISIANA	R. H. KNIPPING Chairman Organization Committee L. S. P. E. c/o A. M. Lockett & Co. Ltd. New Orleans, La.		
MASSACHUSETTS	JOSEPH T. SHEA 27 Robin Street West Roxbury, Mass.	EDWARD C. BROWN 77 Summer Street Boston, Mass.	BURTIS BROWN 45 Franklin Street Boston, Mass.
MISSOURI	E. W. CARLTON Missouri School of Mines Rolla, Missouri	W. H. McDILL Jefferson City, Missouri	A. H. BAUM, JR. 2913 Victor Street St. Louis, Mo.
NEW JERSEY	BEALE M. SCHMUCKER Court House Camden, New Jersey	ERNEST F. WEEKS 200 East Fifth Street Paterson, New Jersey	GEORGE F. RANDOLPH 60 Broad Street Red Bank. New Jersey
NEW YORK	ALFRED E. ROCHE 1604 Peoples Ave. Troy, N. Y.	W. A. STUBBS Grand Central Terminal New York City	JOHN C. RIEDEL 505 Macon Street Brooklyn, N. Y.
OHIO	J. R. BURKEY State Highway Dept. Columbus. Ohio	JOHN LAYLIN 78 Neil House Columbus, Ohio	HAL G. SOURS Court House Akron, Ohio
OKLAHOMA	W. CLAUDE SALE Oklahoma State Highway Commission Oklahoma City, Oklahoma.	C. A. LASHBROOK 1145 N. W. Second Street Oklahoma City, Oklahoma.	CLAREL B. MAPES 308 Tulsa Bldg. Tulsa, Oklahoma.
PENNSYLVANIA	FREDERICK H. DECHANT 526 Franklin Street Reading. Pennsylvania	THOMAS W. BATTIN 921 Widener Building Philadelphia, Pennsylvania	SAMUEL I. SACKS 921 Widener Building Philadelphia, Pennsylvania
RHODE ISLAND	JOHN V. KEILY Providence, R. I.	CHARLES L. POOL R. I. Dept. of Health Providence, R. I.	.....
TENNESSEE	K. C. CHRISTIANSEN Chairman Organization Committee T. S. P. E. Whittle Springs Hotel, Knoxville, Tenn.		
TEXAS	COL W. B. TUTTLE San Antonio Public Service Co. San Antonio, Texas	R. S. GUINN Texas State Highway Dept. Austin, Texas	J. W. BERETTA 1203 National Bank of Commerce Bldg. San Antonio, Texas
VIRGINIA	E. J. F. WILSON Wiley & Wilson, Consulting Engineers, Lynchburg, Virginia	J. S. MILLER, JR. University of Virginia University, Virginia	R. B. H. BEGG Virginia Polytechnic Institute Blacksburg, Virginia
WEST VIRGINIA	CARL L. HORNOR Clarksburg, W. Va.	ROBERT WILLIAMSON, JR. Box 252 Charleston, West Virginia	.....

DUES

Your National Society is working diligently for your profit and interest.

Delinquent dues handicap any organization severely.

Pause for a minute and ask yourself: "Have I paid my dues?" If not, send a check immediately to your State or National Society as is your State custom.

If you have paid, forgive us for mentioning it.

DUES

THE AMERICAN ENGINEER

Volume Seven **AUGUST, 1937** **Number Eight**

Editorial Staff

ROBERT HALL CRAIG
Editor-in-Chief

ARTHUR V. SHERIDAN
Associate Editor

WILLARD S. CONLON
Business Manager

Editorial and Advertising Offices
222 North Third Street
Harrisburg, Pennsylvania

EXECUTIVE OFFICE
National Press Bldg., Washington, D. C.

CONTENTS

	Page
Editorial	3
National Society News	4
Who's Who	5
Progress in Bridge Engineering	6
The Engineer's Opportunity	7
The Philosophy of Professional Licensure	8
Current Opinion	12
Open Forum	14
College and University Activities	15
State News	16

Cover Photo by Richard Allen Smith

THE COVER

Our August cover is the Henry Hudson Bridge, connecting Manhattan and the Bronx, over Spuyten Duyvil, New York City. The total length is 2000 feet and the main span, 800 feet. It is the world's longest plate girder arch span, and the longest hingeless arch. It was awarded first honorable mention in Class A in the annual artistic bridge awards of the American Institute of Steel Construction, June 1937. This bridge was designed by the firm of Robinson & Steinman, of which our immediate Past President, Dr. D. B. Steinman, is a member. Dr. Steinman's article in this issue on "Progress in Bridge Engineering" should be of interest to Professional Engineers.

The American Engineer assumes no responsibility for statements or opinions expressed by contributors. Their names identify the source of the same.

Entered as second-class matter February 17, 1937, at the post office at Harrisburg, Pennsylvania, under the Act of March 3, 1879.

Subscription Rates

$1.00 a year, in advance, to members of the National Society of Professional Engineers and its affiliated Societies. $2.00 a year, in advance, to non-members. Single copies, $.25.

Published monthly by the National Society of Professional Engineers.

For advertising rates write G. R. Bolan, 222 North Third Street, Harrisburg, Pennsylvania.

To the Engineers Being Graduated From Rensselaer Polytechnic Institute

The Rensselaer County Chapter, New York State Society of Professional Engineers, congratulates you and wishes you useful and satisfying places in the work of the world.

You are graduating from the oldest and one of the greatest engineering and scientific schools in America. You are joining thousands who have gone before you, many of whom have done much for this and other countries.

We are particularly pleased to send you this greeting in view of the fact that a member of our own chapter and a graduate of Rensselaer Polytechnic Institute is now president of our state society—Alfred E. Roche of Troy.

Your opportunities will be greater and the path of your progress will be smoother because of the work this society has done and will continue to do for the safe-guarding of life, health and property and for the old and honored profession of engineering, by insisting that those who practice engineering shall be properly qualified and licensed rather than persons who pose and term themselves as engineers. It is unlawful to practice or to offer to practice professional engineering, unless licensed as a professional engineer. Engineers should be identified with the society which represents their profession.

Signed by the Rensselaer county members of the New York State Society of Professional Engineers, all of whom have been licensed by the State of New York to practice professional engineering:

Edward J. Kilcawley,
President County Chapter
Harold B. Howe,
Secretary County Chapter
C. Leonard J. Ager, Jr.
John O. Amstuz
Garnet D. Baltimore
Aage C. Bentzen
James M. Caird
LeRoy W. Clark
Donald H. Cloke
Jos. F. Corcoran
William G. Craib
Fred C. Crowley
Joseph Davidson
John G. Fairfield
Edwin A. Fessenden
James K. Fraser
Joseph T. Freeman
LeRoy Greenalch
John E. Hall
George E. Haynes
Normond S. Holroyd
F. J. Keis
Albert F. King. 3d
William F. Lutz
Thomas R. Lawson
John McBride
M J. Maloney
Grant K. Palsgrove
Guy M. Phelps
John E. Quinn
Alfred E. Roche
Harry Rosenthal
H. Oakley Sharp
Gabriel R. Solomon
Burr M. Stark
Barnet Steiner
O. A. Van Denburgh, Jr.
James A. Waddell
W. Duff Williamson
Joseph J. Zahm

Troy Times Record, June 12, 1937, Evening Edition

EDITORIAL . . .

Union vs. Profession

The purpose of a union, vertical or horizontal, functioning in the capitalistic system, is to promote the comfort and welfare of its members in bringing them better working conditions and higher economic return. This is done through "collective bargaining" by employee with employer.

A vertical union takes in all craftsmen, clerks and other employees below the grade of minor executive. The horizontal union comprises employees practising the same trade.

Until recently unions were generally horizontal—but there has appeared a strong movement in vertical organization. This movement, being promoted in haste and heat, has not as yet reached the point where its executives have had time to consider the effect of embracing all employees within its scope.

In the strife and struggle of rapid expansion the fact that a man practising a profession—the lawyer, the doctor, the architect, the accountant, the journalist, the engineer—stands in the capacity of protecting all humans, regardless of their social or economic status—should exclude him from taking sides, from being with one group as opposed to another. As soon as this is realized—then the purifying process will begin. The Union will say: "We do not want to bias professional judgment—you stick to your professional groups."

With the Engineer, his judgment and ability results in the design of safe structures, sound materials, healthful surroundings, safe drinking water. He must be bound by nothing but his mental ability and his conscience. The union serves humanity more by excluding him.

And the Engineer's welfare is best served by his Professional Society. It is devoted to the cause of teaching and preaching these principles.

All Engineers are bound to the cause of the uplift of the human race—its physical, moral and economic betterment.

Let us fight for the preservation of our professional status through the free exercise of our natural gifts.

—R. H. C.

NATIONAL SOCIETY NEWS

NATIONAL SECRETARY ON TOUR OF SOUTH AND WEST

Oklahoma City, July 12th—We held our scheduled meeting at Knoxville, Tennessee on July 7th and an Organization Committee of the proposed Tennessee Society of Professional Engineers has been appointed.

On July 8th we met with Engr. George H. Sager, President of the Kentucky Society of Professional Engineers, at Lexington, Kentucky and discussed our mutual problems particularly with regard to the proposed campaign for registration in the state of Kentcky.

On July 10th we met with the Missouri Society of Professional Engineers at Jefferson City, Missouri. The enthusiasm of the Missouri engineers indicates that this particular unit may be expected to make a name for itself. The afternoon session was devoted to an informal discussion of the proposed campaign for the enactment of engineers' license law in the state of Missouri, and a splendid opportunity was accorded in which to point out the desirability of having a professional engineers' license law which would in no way recognize the many sub-classifications. Engr. C. A. Lashbrook, Secretary of the Oklahoma Society of Professional Engineers, delivered an address covering the license procedure in the State of Oklahoma and the benefits that have accrued to the profession and Society in that state as a result of the enactment of the engineers' license law. He also covered admirably the many points with respect to the operation of the Oklahoma Society of Professional Engineers. Following the banquet, the evening session was devoted to a discussion of the objectives and accomplishments of the National Society of Professional Engineers which was followed by a discussion with regard to the proposed constitution and by-laws which were subsequently adopted by the convention. Engr. Lashbrook of Oklahoma rendered a fine report on the activities of the Oklahoma Society of Professional Engineers covering briefly the many problems presented during the early stages of the organization. Doubtlessly the Missouri engineers will benefit greatly from the picture presented.

We are enclosing herewith a report of the Nominating Committee of the Missouri Society of Professional Engineers. Those men whose names appear thereon were duly elected to office on July 10th.

We meet with the officers of the Oklahoma Society of Professional Engineers tonight.

—Willard S. Conlon,
Executive Secretary.

New Officers of Missouri Society of Professional Engineers

Nominating Committee—
C. W. S. Sammelman, Chairman,
W. S. Frame,
H. Mullins,
L. H. Dodd,
J. B. Butler, Ex Officio.

President—
E. W. Carlton, Prof. of Structural Engineering, Mo. School of Mines, Rolla, Missouri.

First Vice-President—
F. W. Green, Vice-President, St. Louis-Southwestern R. R. Co., St. Louis.

Second Vice-President
C. W. Brown, Chief Engineer, Missouri State Highway Dept., Jefferson City, Missouri.

Third Vice-President—
G. H. Hamilton, Manager, W. A. Ross, Construction Co., Kansas City, Missouri.

Secretary-Treasurer—
W. H. McDill, Exec. Sec., Missouri Asphalt Assoc., Jefferson City, Missouri.

National Director—
A. H. Baum, Jr.

Directors-at-Large—
A. P. Green, President, A. P. Green Fire Brick Co., Mexico, Missouri.
H. E. Frech, Dist. Engr., Portland Cement Association, St. Louis, Missouri.
H. M. Brush, Div. Engr. Div. 2, Mo. State Highway Dept., Macon, Missouri.
M. E. Countryman, Lab. Engr., Mo. State Highway Dept., Jefferson City, Mo.
L. W. Helmereich, Manager, Capitol City Water Co., Jefferson City, Mo.
A. P. Learned, Asst. Engr.
Black & Veatch, Kansas City, Mo.

WHO'S WHO IN THE NATIONAL SOCIETY OF PROFESSIONAL ENGINEERS

J. R. BURKEY, President of the Ohio Society of Professional Engineers

is Chief Engineer of Bridges and Railroad Crossings of the Ohio Department of Highways at Columbus, having held that position since 1925. He is a member of the Bridge Committee of the American Association of State Highway Officials, and is a member of the Ohio State Planning Board.

Mr. Burkey's career is particularly interesting because of the responsible technical and administrative connections he has had with bridge building, railroad crossing and grade elimination work, and other state highway activities over a quarter of a century. This may have been because he was born at Zanesville, Ohio, the site of the famous "Y" Bridge at the confluence of the Licking River with the Muskingum. Following graduation from Ohio State University in 1908 with the C. E. Degree he first served for a year as an instructor in civil engineering at New Mexico Agricultural College. Then a year and a half as locating and resident engineer for the Oregon Trunk Railroad, followed by a short period as engineer for the Washington State Highway Department.

In 1911 he returned to his native state to become division engineer of bridges in the newly formed Bureau of Bridges of the then struggling Ohio State Highway Department, serving continuously through those pioneering years of state highway development until 1920.

He turned teacher again in 1920 when he became Professor of Civil Engineering at Ohio State University in Columbus, with specialization in bridge engineering, until 1922, at which time he returned to the Ohio Department of Highways as special construction and designing engineer on several large projects.

In 1925 he was promoted to the position of Chief Engineer of Bridges (the title being changed later to Chief Engineer of Bridges and Railroad Crossings) and has served in that capacity continuously through a period of great activity on both bridge and railroad crossing work.

Mr. Burkey is widely known both in Ohio and nationally, particularly in highway and railroad circles. Besides being very experienced in bridge, highway and railroad crossing engineering, both as to details and administration, he has stood for the highest integrity, industry, and efficiency in the public service and has put these principles into practice in the selection and development of the personnel of his organization. He has consistently striven for improvements in bridge and railroad crossing design and construction, so that the works built each year be better able to withstand traffic and the elements. Among the achievements of his administration, which have in recent years received national recognition, are the Ohio State Highway bridge inventory, by means of which a full description of every bridge and culvert on the state highway system is made readily available in the central office (thus eliminating "forgotten bridges"), the Award of Merit by the A.I.S.C. last year for the Lorain Road Viaduct at Cleveland, adjudged the most beautiful steel bridge in Class B built in the United States in 1935, and the development of foundation investigation equipment and technique for pre-determining the length of piling required for a bridge.

The Ohio Society president's interests, however, are not confined to engineering alone. A gifted public speaker, an entertaining conversationalist with wit and humor, and a keen analyst, he enjoys being with people. His favorite recreation is golf and he is as proficient at contract bridge as with bridge contracts.

He is a member of the National Society of Professional Engineers and a past president of the Engineers Club of Columbus, in which, as well as the Ohio Society of Professional Engineers (and its predecessor, the Ohio Engineering Society), he has had many years of activity.

With Mrs. Burkey and their son, John, and daughter, Margaret, he resides at 2421 Plymouth Ave. in Bexley, a suburb of Columbus.

To a host of friends in all walks of life he is known as "J. R."

Progress In Bridge Engineering

By **Dr. D. B. STEINMAN**

Broadcast from New York City Municipal Broadcasting Station (WNYC) June 22, 1937

Fifty-four years ago, the Brooklyn Bridge was completed. It was the crowning achievement of a great engineer, John A. Roebling—a monument to his vision, courage and genius. He had conceived and developed the modern method of constructing cables by stringing wires through the air, and he had built a number of notable suspension structures including the record-breaking spans at Niagara and Cincinnati. Those achievements, however, were but preliminary training for the greater work that was to cost him his life while crowning it with glory. When he presented his plans for flinging a mighty span across the East River at New York, he had to fight his way, inch by inch, against incredulity, ignorance, and prejudice, before the right to try was given him. But he was not fated to behold the fulfillment of his dream—he died during the first year of construction from an injury received on the work. His son, Colonel Washington Roebling, also trained as an engineer, proceeded to carry the work forward—but not without further vicissitudes and sacrifices. During the sinking of the deep foundations, fire broke out in one of the timber caissons; and young Roebling fought heroically to save his father's dream from destruction. The young chief engineer remained in the heart-crushing pressure of the compressed air in the subaqueous chamber, fighting the flames, hour after hour, until the structure was saved. He was carried out, broken in body, a paralytic invalid for life. On the glad day when the bridge opening was celebrated, amidst clanging of bells and shrieking of sirens, the procession of proud Brooklyn citizens marched to Roebling's home to do honor to the man who had sacrificed himself to carry the project to its consummation.

When the Brooklyn Bridge was completed in 1883, it was heralded as one of the "Wonders of the World." It was a triumph of the bridge builder's art. But the science of bridge building was then in its infancy. Nevertheless the old Brooklyn Bridge, designed by empirical judgment rather than mathematical theory, has been carrying, after a generation of service, two or three times the loading for which it was planned. The trusses and roadways are inadequate, by modern standards, and can be replaced; but the essential parts of the bridge —the towers, the cables, and the anchorages—are good for centuries.

The past fifty years have been a period of unprecedented achievement in bridge engineering. Greater progress has been made than in all the centuries preceding. The great bridge structures of today surpass the Brooklyn Bridge as it surpassed the structures that preceded it.

The outstanding elements of improvement in bridge design and construction have been in materials, in mathematical analysis, in foundation methods, in erection methods, and in aesthetics.

It is only seventy years since steel began to be used in bridge construction, the first application being in the Eads Bridge over the Mississippi River at St. Louis, completed in 1874. This valuable material soon superseded the timber, cast iron, and wrought iron successively used in earlier structures. Steel offered new and enlarged possibilities and opportunities. The quest for an even stronger metal soon led to the development and application of alloy steels. Nickel steel, fifty per cent stronger than ordinary steel, was used from 1900 to 1925 in the Manhattan, Queensboro, Quebec, Metropolis, and Philadelphia bridges. A more economical alloy was found in silicon steel, offering forty per cent increase in strength for only ten per cent increase in pound price, and this alloy has been used in practically all long-span bridges built since 1925. Also recently, heat-treated steel has been developed for bridge work, the increase in strength being produced by a special process of heat-treatment of the steel without the addition of other metals. The highest form of this high-tension heat-treated steel permits a working stress three times as high as that allowed on ordinary structural steel, or 50,000 instead of 16,000 pounds per square inch. This material was used in the Florianopolis Bridge in Brazil, completed in 1926. Such development of higher strength steels has extended the range of economic construction of long-span bridges. Attacking the problem from another angle, a new material, structural aluminum, has recently been developed and applied to bridge construction, offering greater strength than structural steel with only one-third the weight. This opens up new possibilities in the attainment of longer spans and in the economical reconstruction of old spans to carry the heavier modern loading.

The mathematical theory of the analysis and design of bridge structures has been vastly extended and improved in recent years. Every pound of metal can now be placed where it will do the most good. Precise analysis has replaced rule-of-thumb. Many of the clumsy, massive designs of the past are now being outrivalled by more graceful, yet more scientific designs. New bridge forms and bridge types have been developed. In the case of the Florianopolis Bridge in Brazil, the introduction of a more scientific form produced a structure four times as rigid with only two-thirds as much metal in the stiffening truss. If the most recently developed mathematical analyses had been available only twenty years ago, as much as sixty percent saving could have been made in certain structures together with an actual increase in their safety. Certain superior bridge types, such as rigid frames, continuous spans, and other indeterminate structures, previously avoided or ignored, have now come into general use as their method of analysis and computation have been improved, simplified, and perfected.

The Brooklyn Bridge and the Eads Bridge, back in 1870, represented practically the first use of pneumatic caissons for bridge foundations. Since then, engineers have had to use their ingenuity and resourcefulness in meeting many greater and more difficult foundation problems. In sinking the foundations of the Hell Gate Arch Bridge, in 1912, a chasm was encountered in the underlying rock and this was bridged by a concrete arch built under the caissons at a depth of 70 feet below the surface. The pneumatic method was limited to depths of 120 feet. Ten years ago, the open caissons for the piers of the Carquinez Strait Bridge in California had to be floated

out and lowered through 90 feet of water in swift current and then carried down 45 feet deeper by excavation to a total depth of 135 feet below the water surface. A few years later, the sand island method was developed for the nearby railroad bridge at Suisum Bay, and those foundations were sunk through artificial islands of sand to a depth of 143 feet below water. For the Mississippi River Bridge at New Orleans, a new record of 170-foot foundation depth was reached, again using the artificial sand island method. For the Transbay Bridge between San Francisco and Oakland, completed last year, a new foundation method was devised by the engineers, using dome-capped caissons to regulate the sinking by controlling the escape of air; and the piers were thus carried down to rock 250 feet below the water surface—the greatest foundation depth thus far attained.

Erection methods for the steel superstructure have also been vastly improved in efficiency, safety and speed. The Brooklyn Bridge took thirteen years to build. Recently, all of the suspended steelwork for a long-span bridge (the Mount Hope Bridge in Rhode Island) was erected in thirteen days. The Brooklyn Bridge cables took 21 months to spin in place. Twenty-five years later, the Manhattan Bridge cables, nearly twice as large, were constructed in four months. In 1917, after two disastrous failures, the suspended span of the Quebec Bridge was lifted to place in four days of jacking. Ten years later, using an improved method, the suspended span of the Carquinez Bridge was easily and quickly lifted to the same height of 150 feet in 35 minutes. For the Elizabeth Bridge at Budapest, completed in 1903, cumbersome, expensive falsework was placed across the Danube to support the eyebars during stringing, and this operation took one year. Twenty years later, using an improved method completely dispensing with falsework, the eyebar cables of the Florianopolis Bridge in Brazil were completely erected in two months. The old time bridges that took ten or more years to build are pygmies in comparison with some of our modern gigantic structures that are completely constructed in three or four years.

The artistic aspect of bridge design has also been greatly developed. Early steel bridges were purely utilitarian. Engineers have now come to realize that bridges are an index of progress, and that every span should be designed with a view to beauty. We do not want our engineering structures to be contributions to what some have called "this ugly civilization." More and more beautiful bridges are being built. Ten years ago, the American Institute of Steel Construction inaugurated a series of annual awards for the most artistic bridges, and this has stimulated increased attention to this aspect of bridge design. In bridge after bridge, engineers have demonstrated that beauty can be secured without sacrificing utility or economy. Instead of resorting to concealment or extraneous decoration, bridge designers are now directing their efforts toward producing the most beautiful designs in the steel itself, by developing and perfecting forms and proportions that will most beautifully express the dominant spirit of this material—its strength, its power, and its grace.

Span length is, in a sense, a measure of progress in bridge engineering, for it records achievements in mastering the forces of Nature. In 1883, the Brooklyn Bridge had the world's record span-length of 1595½ feet. Twenty years later, the 1600-foot span of the Williamsburgh Bridge added only 4½ feet to this record for suspension bridges. In the field of cantilever bridges, the Fourth Bridge in Scotland established a world's record in 1889 with a span-length of 1700 feet. Thirty years later, at the price of two great catastrophes, the Quebec Bridge spanned the St. Lawrence and the world's record span length was increased from 1700 to 1800 feet. In ten years more, the Ambassador Bridge at Detroit was completed, increasing the record span from 1800 to 1850 feet. Then, only four years later, in a single leap, the George Washington Bridge increased the record span from 1850 to 3500 feet. Again four years later, the Golden Gate Bridge was completed last month with the new record span-length of 4200 feet. And plans have been prepared for a magnificent span to cross the Narrows at the entrance to New York Harbor, with a span-length of 4600 feet.

Such is the panorama of progress in bridge engineering. This generation is profiting by the works of the pioneers and is tackling even greater tasks. Whatever we may accomplish will in turn be eclipsed by those who follow us.

The Engineer's Opportunity

A Paper Read Before the Annual Convention of the New York State Society of Professional Engineers at Hotel Commodore, N. Y. C., May 21, 1932

Opportunity is like two willing hands, one alert brain and one strong will.

Engineers complain that work is scarce and that they cannot change the conditions that confront them today. What are they doing to enlighten the public as to their capabilities and accomplishments either by publicity or cooperation to bring about a better condition.

The other day the newspapers printed news items of two engineers. One, who was job hunting, was found at the point of starvation. The other announced that he was on his way to Europe, to take charge of the Russian expansion program. A key man. A man of vision who will take charge of an aggressive policy.

To which one of these men do you suppose the public will pay the highest tribute. The engineer who was in want of food and work or the one who is going to guide the destinies of the Russian people?

Which one is going to receive the most admiration, honor, and emoluments. The one who was found by a reporter in a pitiful condition, or the one who had a well paid press agent at his command to tell the public about his great undertaking.

The old idea that the public must find out the best way it can what an engineer is or what he can do, is not getting us anywhere. How are they going to know if we don't tell them?

A capable engineer seeking an appointment as a public service commissioner was told by the "Powers that Be" that he was not well known. A man at the Hotel where

(Continued on page 13)

The Philosophy of Professional Licensure

By **JUSTIN MILLER**

Dean, School of Law, Duke University

An Address Delivered at the Thirtieth Annual Congress on Medical Education, Licensure and Hospitals, in Chicago, February 12, 1934

Printed by permission of National Council of State Boards of Engineering Examiners, Columbia, S. C., 1937

I shall not attempt to cover all phases of my subject in an intensive fashion. I shall deliberately avoid more than a reference to some of those subjects which are most frequently discussed in professional groups. To me, problems of unlawful practice of law and medicine are quite collateral, and methods of criminal law prevention of competition by unlicensed practitioners may be actually harmful if their use results in blinding members of professional groups to the importance of strengthening their own resources and improving constantly their capacity to render a higher degree of professional service. Frankly those members of our professions, who are most concerned with the use of law to prevent competition, are frequently the worst offenders so far as concerns their understanding of professional obligations and their willingness to support proper standards of education and licensure. The same man who will be found shouting loudest for giving every poor boy a chance to practice law and in favor of licensing as physicians every boy who can pass examinations in the technical trade subjects of medicine, is the very one who thinks that the one way to protect and improve the profession is to pass and strenuously enforce criminal laws against invaders. We should not forget that prosecution, to the undiscriminating public may easily be interpreted as persecution, that persecution begets martyrs and martyrs beget disciples. Prosecution should be strictly limited to cases fully understood by the intelligent leaders of the community, who will thereupon eagerly interpret its use to the undiscriminating public. An intelligent, properly trained professional group will render service in such manner and interpret the meaning and purpose of the profession to the community in such manner as to make the use of prosecution come as a result of the insistent demand of the community for its own protection. We must remember that, as was said by Charles A. Beardsley, President of the State Bar of California, (14 Jour. of Am. Jud. Soc. 130):

> "In the long run, the public is going to be served in any particular field by those who serve it best, whether they be attorneys or laymen. What the public has given us the exclusive right to do today the public can take away from us tomorrow. The public has demonstrated that with the laws dealing with industrial accident litigation and title work, and the public is talking about doing the same thing again with laws dealing with automobile accidents. The public that gave us the exclusive right to practice law can take it away or modify it at any time; and, in the long run, we are going to retain that exclusive right only so long as we can serve the public better than any one else."

In the long run whether the method of procedure adopted by the particular profession be, as the lawyers have done, to keep the standards for admission so low that the profession is constantly concerned with the problem of eliminating its shysters, or as the physicians have done, to keep the standards so high by educational requirements and basic science boards, that the profession is constantly concerned by the activities of quacks and fakirs outside—I repeat, in the long run, neither method nor any other method will be successful until the members of each profession, individually and collectively, are made acutely aware of their professional obligations and trained to interpret the profession to the public.

I shall not discuss administrative methods of licensure, nor the content of the professional curriculum, except as discussion of those subjects may be necessary to illumine those which form the body of my remarks. If there be any one who hears or reads this discussion who wonders what there is left to discuss, then he is the one who most needs new direction for his thinking.

My purpose is to consider rather broadly the underlying philosophy of licensure. My belief is that agreement upon a few fundamentals will make the other problems much more simple in their solution and that failure to understand and agree upon fundamentals is the main cause of our present professional difficulties. I shall adopt for my definition of philosophy that one which reads, "In more general application and usually with 'the' or 'a' philosophy denotes a systematic body of general conceptions, ordinarily with the implication of their practical application."

All who associate with the so-called academic group are familiar with the discussions which take place, from time to time, regarding the true purpose and function of honor societies or fraternities such as Phi Beta Kappa. Occasionally, in some schools an effort is made to spur such organizations into activities such as dinners, discussions, debates, etc. Usually such societies remain dormant, except for those periodic occasions when they revive long enough to elect new members and replenish their exchequers. One, who is elected to membership, quickly finds, if he was not already aware of the fact, that the awarding of the key means little more than a recognition of achievement, similar to the placing of a laurel wreath on the victor's brow or pinning a medal on his breast. Nothing remains for him to do in connection therewith except proudly, but unostentatiously, to display the medal through his remaining years.

In sharp contrast, is the licensing of one to practice a profession. It is true that licensure does involve some recognition of achievement, but it is a minimum of achievement which is stressed in this case; a minimum which is deemed adequate to guarantee a safe performance within the field of practice. Here we have, as it were, the opening of the door of achievement. It is the possibility of achievement in the future, rather than recognition of achievement already accomplished, which is emphasized in the concept of licensure. For indeed one of the essential elements in the definition of the word license and of its derivatives, of which licensure is one, is *action,* "authority or liberty given to do or forbear any

act; permission to *do* something; a formal permission from the proper authorities to *perform* certain *acts* or to *carry on* a certain business which without such permission would be illegal; * * * as a *license* to *preach,* to *practice* medicine, to *sell* gunpowder or intoxicating liquors."*

Frequently so far as licenses to carry on business are concerned, the holder of the license is, by virtue thereof, the holder of a sinecure which requires no more than the perfunctory performance of service and the collection of money therefor. A striking example of this is to be found in the licensing of saloons. The only article on licensing or licensure which appears in the Encyclopedia Britannica relates to "Licensed Victualler." Of him the article says, "The 'licensed victualler' became a publican whose primary and practically sole business was and is the retailing of alcoholic beverages.—Licenses were granted by juctices in many districts with a careless and often a shameless disregard of local needs which drew upon them repeated admonitions from the Privy Council and from judges of assize, and required frequent resort to summary measures of license suppression." The same is true of many licenses granted under our Jacksonian theory, "to the victors belong the spoils." In a very real sense licensure means, in these cases, no more than a recognition of achievement and reward therefor, based upon such considerations as faithful adherence to a political machine. Some professional men think of themselves in much the same terms, and think of the process of education and licensure as equivalent to the process of political manipulation which is involved in the securing of a licensed sinecure. A system of education and licensure which permits the induction into the profession of a person possessed of such ideas, fails in its inception. The wholesale admission of lawyers who have had no contact with either college or law school is a flagrant contribution to this evil. A professional school which trains only to pass entrance examinations is as bad, and a school which fails to teach its students the place of the profession in society and impress upon its graduates the necessity for continuing study and constant regard for the full responsibilities of the profession, is failing signally.

However, we must inquire further to discover those characteristics of the philosophy of professional licensure which distinguish it from business or other licensure. In pursuing this inquiry we may give thought to the effect of each of the following considerations: (1) the nature of the authority which licenses or authorizes action. (2) the purpose sought to be accomplished by the licensing authority, (3) the nature of the act to be performed, (4) the character, training, and skill required for the proper performance of the act.

Numerically considered most licenses are granted by governmental agencies, federal, state or local. Usually this power is exercised by boards, commissions, or agents appointed for that purpose, and in many instances is administered on a fee, or percentage, or tax collection basis, sometimes, frankly, to the highest bidder. The familiar example of the so-called *sale* of concessions at public fairs and markets well illustrates this situation at its lowest point.

The more closely we approach the professional groups, however, the less important becomes the tax or fee element, until finally it is reduced to a minimum, the amount charged being, usually, only enough, or even less than enough, to carry the cost of administration. On the other hand, the more important become the qualifications of examining boards and the rules and regulations regarding the prerequisites for eligibility to take examinations as well as the nature of the examinations themselves. Thus without attempt to arrange them in proper relation, it is easy to see an ascending order in the qualifications of examiners, and in the rules for licensure, for example, in the following: plumbers, barbers, civil service employes, nurses.

Finally, when we reach the professional group, we find a situation in which only the members of each group are qualified to set standards and give examinations. Here then, though the government is the final arbiter of matters of general policy, it, actually, delegates authority to members of each professional group to set up standards and administer rules regarding licensure. Sometimes this takes form through an administrative body such as a board of examiners. Sometimes it consists in recognizing the degree of an "approved" school; approval being given directly by the legislature to particular schools, or generally to a list prepared by a professional association. Sometimes it even goes so far as to transfer to an organized professional group, power to set up an examining board, establish standards and generally control the whole matter of licensure. Whatever may be the local variation, in each case it appears clearly enough that there exists as regards professional licensure, a definite recognition of the propriety and necessity of control thereof by each professional group for itself.

It is only natural that some members of the professions should assume from these facts that the right of self-determination and self-perpetuation is inherent in professional life. Kings once made the same assumption, and asserted it in terms of the famous phrase, "the divine right of Kings." It is only natural that such professional men should assume that the purpose of professional licensure is the better to secure themselves, their fees and prerequisites against a world which would otherwise invade their sacred premises and divest them of their place in the sun. In fact, however, the purpose of professional licensure is, on the one hand, to secure to society the benefits which come from the services of a highly skilled group and, on the other hand, to protect society from those who are not highly skilled, yet profess to be, or from those who, being highly skilled, are nevertheless, so unprincipled as to misuse their superior knowledge to the disadvantage of the people. Thus, for instance, it is said at page 151 of the Final Report of the Commission on Medical Education:

> "Certain standards for admission to the medical profession have been recognized since the beginning of history. Even in ancient Rome the requirements were defined by legal action in an attempt to protect the public from practitioners who were not considered to be qualified to treat the sick.
>
> * * * * *
>
> The various efforts to outline the requirements for practice have taken the form of regulations and legislation to create reasonable standards of proficiency. From the beginning the object has been the protection of the public, not the protection of the physician."

It is said that in former ages the general level of intelligence was so low that lay people were actually at the mercy of members of the learned profession. Today, though the general level of intelligence has moved up appreciably, the content of knowledge in the professions has, perhaps, increased even more greatly. It is a matter of necessity, therefore, not of choice, that the control of licensure is delegated to members of each profession. No one else knows enough about the science and the art in-

* Webster's Dictionary.

volved in each case, to insure to those outside the profession, the benefits thereof, on the one hand, and the protection from spoliation on the other. Normally this delegation of authority indicates a confession of inability, adequately to determine the qualifications of desirable new members of the various professions and faith that the leaders of the professions will establish and maintain such standards as will insure the benefits thereof and prevent the spoliation which might otherwise occur.

This attitude of the people and of the governmental officials who represent them will no doubt continue only so long as their faith in the capacity and honesty of the members of the various professions shall continue. It is well to note in this connection that the attitude of lay people and the extent of delegation of governmental control over licensure have varied considerably in the past, with reference to different professions, and may very well do so in the future.

If in the case of any profession, society determines that its faith has been misplaced; that the benefits thereof can be better secured and the dangers thereof better guarded against by greater regimentation and governmental domination, then these changes will come, in spite of the protests of those who are most professionally conscious. Again if society decides that its peace, happiness and well being will be best secured by a hands-off, non-licensing policy, then that profession may become disintegrated, with segments going in various directions according to the whims and caprices of the different groups. So, for example, it is easy to imagine a once dominant medical profession, divided up into segments of physicians, surgeons, osteopaths, psychiatrists, chiropractors, and Swamis. It is equally easy to picture general counsellors, trial lawyers, title experts, trust officers, patent lawyers, tax-accountant advisers and ambulance chasers, all claiming to be lawyers, setting their own standards and some openly advertising for the sale of their wares. It is not necessary to argue the possibilities of this proposition. It has been already well demonstrated in the case of the military profession on the one hand, and the ministerial profession on the other.

It will be recalled that at one time, in some countries at least, the military profession was so loosely organized that armies could be secured for hire as were the Hessians in the American Revolution. The escapades of renegade soldiers, who have stirred up and led revolutions in Spanish America also indicate that in some parts of the world even yet, the military profession, on the loose, is not unknown. But consider the military profession in the United States today. Governmental control has become so great that it may be seriously questioned whether licensure is a proper word to describe the process of recruiting new members. True it is that such recruiting is under the control of members of the profession, but the method of selection and training is so arbitrarily fixed by law, the compensation of members so definitely regulated, the duties so definitely specified, and the professional freedom of action so completely limited under a governmental control which heads up in the President of the United States and two of his cabinet officers, that it may be fairly said that the army and navy are now branches of government and their members, in only a very limited sense, members of a profession.

It will be recalled, also, that at one time in England and in other countries, the church and state were in close union. The representatives of the church were state officials, with seats in parliament, with ecclesiastical courts and wide power to try and punish offenses. But consider the condition of that profession in the United States today; so scattered that one segment has no relation to the other. In one segment, standards of selection, training and ordination are high and rigorously enforced. In another they are so low that it is difficult to detect any standards at all. In fact there is nothing to prevent one from going out "on his own," to preach a gospel of his own devising; so long as he can avoid the minimum of laws prohibiting unlawful assembly and inciting to riot or sedition.

This striking change is directly traceable to the guarantee of religious liberty found in our constitution. That provision was written into the constitution only after a long process of religious and political oppression, designed to force the people into the mold prescribed by the members of the profession. It is interesting to speculate on what the result might have been if the effort had been rather to meet the varying religious needs of all the people, in a less arbitrary fashion.

Consciously or unconsciously such considerations as these have entered into the determination of the particular relationship which should exist between society and each professional group. Licensure is the agency which has been used to achieve such relationships and in particular instances it has been used to build up, to discipline, or to break down a profession. In the case of the church, removal of the sanction of licensure resulted in professional disintegration. The people believed that their happiness would be better secured by divorcing the church from the state, because its dangers were greater while the union existed and its benefits were greater when everyone was free to worship his own God in his own way. In the case of the army it was felt that the danger of an army was much greater when it was out of state control and its benefits much greater when it was under state control; consequently, a method of licensure was used which gave control and domination to government and resulted in the severe discipline of the profession.

Somewhere between these two extremes, fall the other professions and particularly the two represented in this group, medicine and law. There are evidences that some members of each group would like to see a trend toward more complete regimentation of professional activities, governmental regulation of compensation and lessening of professional freedom of action. The present trend of government, toward regulation of business, seems a definite step in that direction which may very well, in time engulf the other professions. There are evidences on the other hand that some members of the professions would like to be allowed as complete freedom of action as are business men. This is evidenced by protests against professional standards of ethics; particularly against such rules as those prohibiting advertising. These reactions of small elements in the professions are not important however, except to the extent that they reflect the attitudes of society toward the profession. One represents a pull toward the type of disintegration which has taken place in the ministerial profession; the other represents a pull toward the disciplined regimentation of the military profession.

For the present, at least, society seems willing to permit our two professions to work out their own destinies and to use the method of licensure for further building up and strengthening our traditions of self-government and public service. How long this attitude of society may prevail will undoubtedly depend upon how convincing shall be our demonstration of willingness to render the highest degree of service and the fullest measure of protection, compatible with our professional capacity. If this premise be sound, then it becomes necessary to consider that next important element of the philosophy of licensure

—*i. e.*, the nature and extent of our professional obligation to serve and protect.

One way of testing the nature and extent of that obligation is to consider the difference between a profession and a business. In business transactions each participant is assumed to be equally well informed and equally able to hold his own in the give and take of trade and barter. The well known maxim of the law warns: "Let the buyer beware." On the other hand, the member of a profession is assumed to be better informed than the client or patient whom he serves, and stands in the position of champion or protector.

The very nature of professional service requires the existence of a relationship of trust and confidence. In order that he may be best served, a person must break down the barriers of reserve which otherwise serve to protect him, and deliberately reveal to his professional adviser secrets of physical or mental disability or secrets of business, of the most intimate nature. The situation which makes possible the most beneficent service from a highly skilled, trustworthy professional, therefore, is one which makes equally possible his spoliation, if the one in whom such confidence is placed happens to be a charlatan or a shyster.

The very words used in describing those who seek service from professional men is evidence of the nature of this fiduciary relationship. The word "client," which means "one who consults a legal adviser in order to obtain his professional advice or assistance or submits his cause to his management," comes directly from the Latin where it meant in Roman society "one of a class of dependents—directly bound to their patrician patrons, whose duty, in turn, it was to protect them."* The word patient comes from a Latin verb meaning "to suffer," and, in present-day usage, means one under medical or surgical treatment or one under care, supervision, or discipline.*

Obviously a professional man cannot treat such a relationship in a casual way and the methods of licensure must be such as to insure the constant recruiting of men who are adequately trained to render skilled service and alert to accept the responsibility of protecting those whom they serve, against spoliation.

As has been already indicated, there are in each professional group some who are so unaware of the nature of a profession and so willing to exploit it, that like the French King they might well say, "after us the deluge." Moreover, there are constantly knocking at the doors and asking for admission, shysters and scalawags whose only reason for seeking admission is that as one applicant recently testified, they have heard, "it's an easy way to make a lot of jack." Advancing a step or two beyond this type we come to a group of professional men who are frankly resentful of any obligation to render service beyond that which is involved in giving the best which they can to their individual paying clients. This, too, is a highly unfortunate attitude. While such men are to be commended for their skill and for their devotion to their patients, they seem unaware of other professional obligations and forget that each member consciously or unconsciously interprets the meaning and purpose of the profession to every person who knows him in his professional capacity. The fact that the professional obligation goes much farther than devoted and skillful service to paying patients is freely conceded by the leaders of the various professions, and is usually stated in professional oaths and canons of ethics. This fact is so well known that it requires no demonstration, but I cannot resist two or three striking illustrations:

1. Dr. Etienne Burnet, of the Pasteur Institute, Expert attached to the Health Organization of the League of Nations, in a report published in Volume II of the Quarterly Bulletin of that organization, discusses the present trend away from individual medicine and toward collective medicine and says among other things,

> "Health is regarded as one of the 'rights of man' which modern society is obliged to concede, and no nation can shirk organization of medicine for people, and hence the organization under the auspices of the state of public health, social hygiene, public relief and insurance." p. 630.

2. In the final report of the Commission on Medical Education it is said, among many other things in a fifty-six page chapter on "Public Aspects of Medicine":

> "Medical education has concerned itself in the past almost exclusively with the training of physicians and with contributions of new knowledge regarding health and disease. The medical needs, in the light of knowledge which existed then, were relatively simple. The social organization was also simple. Leaders in the profession were fully aware of the problems of their day and endeavored to train students in keeping with current knowledge and practice.
>
> "The rapid growth in knowledge and the changes in social organization in recent years have greatly complicated the problems of medical service. The rapidity of the change and the more widespread public recognition of the place of health in individual, community, and national life have emphasized the importance of securing a more satisfactory distribution and utilization of the trained personnel in relation to the needs and the social organization.
>
> "The large investment of society in universities, medical schools, hospitals, and public health activities and the important investment of the time of students in their education make the present lack of correlation between the production and the utilization of trained health workers highly wasteful. An effective social use of these investments requires that those responsible for medical education should know the newer responsibilities of the profession in the health program and the changing forms which practice may take to meet those responsibilities effectively." pp. 13-14.

3. In the preface of the report entitled, "Training for the Public Profession of the Law," issued by the Carnegie Foundation in 1921, (p. xvii), it is said:

> "There is a widespread impression in the public mind that the members of the legal profession have not, through their organizations, contributed either to the betterment of legal education or to the improvement of the administration of justice to that extent which society has the right to expect. Whether that impression be ill-founded or not, it is clear that the bar as a special group, and in some respects a privileged group in the social order, will today be called upon for a sincere self-examination of its duties to society, and its relation to the realization of justice. It is hoped that this volume, setting forth the history and the development of legal education in the United States, may serve at least some part in enabling the profession itself to discharge that serious and high duty to organized society which is necessary for human progress and for the preservation of civil liberty."

(Continued in the September Issue)

* Webster's Dictionary.

Current Opinion

REGISTRATION OF PROFESSIONAL ENGINEERS

(Reprint from Power Plant Engineering, April 1937)

From time to time the question of licensing or registering engineers has come up for consideration in the legislatures of various states. The licensing of engineers in charge of steam power plants has been the law in a number of states for many years, and many cities have adopted ordinances where state laws are not in effect. Although there are groups of interested individuals that have been successful in blocking legislation of this nature in many states and cities, it is noteworthy that these laws have been effective in raising the quality of engineers in charge of plants and likewise reducing the prevalence of accidents attributable to ignorance on the part of operating engineers, even during the period of rapidly increasing boiler pressures and the development of intricate control equipment. On the basis of the results secured, few can question the merits of laws that have been passed and carefully enforced.

Another form of engineer's license has been passed by thirty-five states of the Union and is now up for consideration by the legislature of the State of Illinois It is a bill known as "The Illinois Professional Engineering Act" which requires all persons engaged in any professional service, such as consultation, investigation, evaluation, planning, design, or responsible supervision of the construction, in connection with any public or privately owned public utilities, structures, buildings, machines, equipment, processes, works or projects, wherein the public welfare, or the safe guarding of life, public health or property is concerned or involved, when such professional service requires the application of engineering principles and data, to be registered in the state as a *professional* engineer.

One section of the bill defines the term professional engineer as a person who, by reason of his knowledge of mathematics, the physical sciences, and the principles of engineering, acquired by professional education and practical experience, is qualified to engage in engineering practice as outlined in the previous paragraph. Penalties are, of course, provided for practicing *professional* engineering without being registered as such.

As written, this bill follows substantially the "Model Registration Law" as adopted by most states in recent years and will affect the means of livelihood of many engineers now practicing in the State of Illinois. Although the requirements for registration are no higher than industry should expect of those employed for such service, the law may place a temporary hardship on some who have learned their specific job of design or supervision through the school of experience. With this law in effect, employers of *professional* engineers may be required to rearrange the duties of their various employes now doing engineering work.

Such a law properly enforced should insure to the public safer structures and to professional engineers a recognition for which they have long striven, comparable in a limited way to doctors, lawyers, achitects, structural engineers and certified public accountants.

This bill has the backing of an organization of engineers known as the Illinois Committee for Registration of Engineers and should have the consideration of all resident engineers in any way affected by its provisions. Unquestionably members of the Legislature would welcome either individual or group opinions regarding the passage of this proposed law.

GOOD COUNSEL

(From a recent issue of Engineering News-Record)

A sane word on educational methods, especially pertinent to current problems of engineering education, comes to notice in an address by Hardy Cross before a section of the Society for the Promotion of Engineering Education last spring, recently published in the Society's journal. Prof. Cross says that it is teaching that counts, not curricula, and that all of the new developments in engineering education would fit quite as well into the curricula of thirty years ago as they do into the more modern ones. The truth of this remark will be recognized by anyone who recalls the splendid work done by our best technical schools thirty and more years ago—the result of sincere, conscientious and inspired teaching more than of highly organized curricula and elaborate equipment. When Prof. Cross says that great buildings and fine laboratories cannot make a great university, but that great teachers do, he gets down to a fundamental principle that engineering colleges will, we hope, never leave out of mind. It is worth remembering, too, that a similar truth applies to the mystic operation of "raising the status of the engineering profession"— its progress depends less on organizing, publicity, bootstrap pulling, than on the personal influence of great engineers.

UNIONIZATION OF ENGINEERS

(From the May 27, Engineering News-Record)

On opposite sides of the continent the matter of unionization of engineers has come strongly to the fore, though the reasons for its sudden prominence are only remotely related. In Seattle particularly, and less intensely throughout the whole state of Washington, a strong drive to sign up all salaried engineers with the American Federation of Labor has put squarely up to several hundred engineers the question of whether they will or will not join a union. In New York, where some industries are being organized into vertical unions by the Committee for Industrial Organization—the C.I.O.—the demand for a closed shop has become so insistent that engineers find themselves practically compelled to join the union. The situation in New York is thus characterized by an engineering executive of one company: "We don't believe that our engineers have to join the union, but as the Wagner Act is now interpreted we believe that we must tell all men below the executive grade that they are expected to join. If they don't, we can't force them to."

In the abstract, the large majority of engineers view engineering as a profession, something above trades and unions; yet many of these same engineers find that their pay in most instances is below that of men in the skilled trades and they see evidence around them of still better pay being obtained by these skilled trades through concerted action. Today the abstract question for many engineers has taken on concrete form; they find themselves forced to decide whether to hold to the principle that their work is professional activity rather than manual labor, and stay out of labor unions in the hope that

their employers voluntarily will increase their pay, or else to forget principle and join a union which holds out enticing hope of better pay.

The issue now put up to many engineers has another unfavorable though less evident aspect. It would seem to lead to a definite cleavage between the engineer who is an employer and the employed engineer below the executive grade. In fact, if the unionization movement goes forward on a large scale, it may lead to the elimination from engineering of the subprofessional group (as to type of work rather than as to qualification), putting them into a class of skilled technicians along with carpenters and shovel operators. The definite segregation of these men as labor union members will help to widen the gap between engineer employer and employee and inevitably will speed the day when many of them will find themselves completely out of the engineer group.

May it not be that the way to avoid unionization can be found in much more aggressive activity in matters relating to salaries and working conditions on the part of state societies of professional engineers? The New York State Society of Professional Engineers, for example, in cooperation with some of the other local engineering organizations, has done much in an informal way in recent years to improve the position of engineers, especially those employed by relief agencies. It could do much more without any major change in its organization. Through county chapters such a state society can keep in close touch with local conditions.

The present drive toward unionization of engineers finds its source in the Wagner Labor Relations Act. The unions are making the most of that act's implied grant of exclusive bargaining power on pay and working conditions to majority groups, thus depriving the minority or the individual worker of any such right. That the courts ultimately will restore to minority groups the rights that now appear to have been taken away appears certain. When that day comes, the small groups of engineers can be heard through representatives of their own choosing and will not need to lose themselves in a larger group whose representatives have little knowledge of their peculiar problems.

There is then no present need for engineers to join labor unions, either voluntarily or unwillingly, under the false impression that they have no alternative. If existing organizations of engineers keep abreast of their responsibilities, there never will be need for unionization in the engineering professon.

SANITARY ENGINEERS?

Recently there appeared an article stating that at the Annual Dinner of the Master Plumbers in a New York hotel the preceding evening the principal speaker was the Hon. Samuel L. Fassler, Commissioner of Buildings, Borough of Manhattan. Addressing the plumbers, he told them that personally he felt that the term plumber was not a very dignified one in that it depicted a dirty man crawling out of a ditch and suggested that why, in the future, did they not call themselves Sanitary Engineers. In fact he said "in the future in any communications I am going to call you men Sanitary Engineers surely your calling is as high as some I know who are designated by a more dignified title."

Scarcely had the ink dried on the paper and the paper read than a storm of protest arose among the live-wire engineers in New York City. Past President Riedel of the New York State Society and ex-President Steinman of the National Society of Professional Engineers immediately went into action. They were aided by numerous other engineers who wrote their personal objections to the intended infracture of the existing law. The State Educational Department was immediately notified of the intended infracture of the law and promptly backed the engineers in their contention that if these men were legally qualified that department nor any organization would not object but that there existed a law that regulated the practice of engineering. A few of these master plumbers did sign their names as Sanitary Engineers and were promptly advised to refrain from such practice in the future.

Mr. Fassler when approached by an engineer high in the official family of the Professional Engineer told our representative "he was only fooling."

THE ENGINEER'S OPPORTUNITY

(Continued from page 7)

Bronx Chapter meets asked whether we were hoisting or steam engineers.

It is time that we adopt a new and practical policy of aggressiveness based on achievements and employ a press agent to tell the public what we have accomplished in fields other than engineering.

We can cite them many engineers who are making good as City Managers, Chief executives and managers of large industrial and railroad corporations. Yes, and many of them are good politicians.

During this whole period of depression not one single Napoleon of Finance has come forward with a single constructive suggestion how to restore confidence among business men.

With engineers engaged in many lines of industries, coming in contact with men of all walks of life, and trained to solve knotty and intricate problems, they are in a position to solve this problem of unemployment and depression. How? By throwing open our chapter meetings to discussions on topics akin to political questions. Then, when we go out into the world, we can talk intelligently to the man on the street upon these great issues and give him our solution to these great problems.

A group of engineers were reminded recently that business men are looking to the engineer for guidance, suggestions and inspiration to lead them out of this crisis.

Gentlemen, the old formula "How are you going to do it" or "It can't be done" has never won us any medals. Let us try something else. Let us gather around the council table in a body and work out a new formula which will get the confidence of the public, their recognition and esteem.

MARTIN BERNHARDT,
1234 Taylor Avenue, Bronx, New York.

Open Forum

Dear Editor:

Ever since I began reading the AMERICAN ENGINEER I have looked upon it as a canon for my professional orientation. I believe other Engineers too have profited from its perusal.

Further articles and editorials that will appear in this magazine should guide the Professional Engineer as a compass guides the ship on the ocean. The many problems which our contemporaries present, be they professional, economic, social or otherwise, will compel the Engineer only too often to look upon that compass. The Engineer should read therefrom what he amounts to and what his responsibilities are in various forms.

Non-Engineers too will read the AMERICAN ENGINEER. They in particular should find between the covers of our magazine who their new friend is and what he really does for the public. Readers should discover that there were Engineers before they rose from oblivion. Maybe the public will put a new hope into the Engineer and spur that man to still greater activity and accomplishments.

The Engineers must represent a united, solidary, strong group of men through their National, State and Local Organizations. Outwardly this group of men must show a united front.

One means to accomplish this would be that all Professional Engineers in this country display a sign, trademarked at the U. S. Patent Office. Only registered Engineers should be allowed to display such a sign, bought of the National Society. A reprint of the pattern should appear over the Professional Directory in the AMERICAN ENGINEER. Three copies of a proposition along that line are enclosed herewith. Others may be made and chosen from.

Yours very truly,
HANS B. LIPPELT,
Ozone Park, N. Y.

Editor of the AMERICAN ENGINEER:

The AMERICAN ENGINEER should be the vehicle for disseminating information and contacts between distant members, who are in need of help and cooperation for constructive purposes.

Frequently timely articles appear, both in the OPEN FORUM columns and as LEADING articles in the journal which should receive early consideration. Oftentimes our chapters do not take cognizance of such matters until it is too late.

If the editor of all articles in the magazine, with the permission of the writer of course, would publish his name as well as his address, it would help considerably in getting cooperation and early action on most of these matters.

Most progressive newspapers and trade magazines do it, why can't we follow in their footsteps?

The magazine should also publish at least once every quarter, WHEN and WHERE every chapter meets together with the secretary's name and address, so a distant member may have an opportunity to visit that chapter or correspond with it, regarding inquiries about a prospective job, before making application, or any other important matter.

Better still in order to reduce costs have a roster of all chapters in U. S. printed in a loose leaf form.

The Society has been formed to serve the many, and not only a few.

Yours truly,
MARTIN BERNHARDT,
Bronx Chapter, N. Y.
1234 Taylor Ave., Bronx, N. Y. C.

Mr. L. S. Hart, Dist. Mgr.
Bell Tel. Co. of Pa.,
Reading, Pa.

Re: New Telephone Directory.

Dear Mr. Hart:

After careful thought we are requesting your cooperation and assistance in securing the execution of the idea below outlined thereby actually making the classified section of your Directories more nearly correct at least insofar as Engineers listing are concerned.

It is the desire of our Society that the almost universal abuse of the word "Engineer" be eliminated and one big step in the direction of accomplishment could be easily effected by merely changing the heading of "Engineers" to "Engineers Professional" with the following sub-heads, Consulting, Civil, Electrical, Mechanical and Sanitary.

With such heading for any one other than a Registered Professional Engineer to be so listed would constitute a violation of the Act making them subject to prosecution.

We will gladly meet with you at your convenience if you desire to go into this matter in more detail.

Any consideration and assistance you may lend to this request will be appreciated by every member of the Society and Profession.

Thanking you for your efforts in our endeavor,

We are

Yours very truly,

President.
(Reading Chapter of Prof. Engrs.)

NEW TECHNICAL MANUAL ON CALCIUM-CHLORIDE-STABILIZATION OF ROADS

The widespread interest in stabilization of soil aggregates for low-cost roads has led to a general demand for up-to-date, authoritative and comprehensive information on the principles and methods of procedure. Since rural residents, farm leaders and, finally, the U. S. Department of Agriculture have recognized the tremendous need for low-cost, all-weather roads, the Federal government has allotted huge sums of money for the purpose of building extensive mileages of roads of this class.

To meet the demand for complete information on soil stabilization, a new bulletin on "Low Cost Roads Stabilized with Aggregates, Binder Soil and Calcium Chloride" has been issued by the Calcium Chloride Association, covering specifications, design of mixtures, construction, and maintenance. Profusely illustrated with pictures and charts, this new bulletin tells, in 85 pages, practically the whole story of soil-stabilization. In addition to the data on procedure, the manual contains a bibliography of outstanding articles and reports on the subject and a glossary of terms most commonly used.

Bulletin No. 25 should be in the hands of every engineer, contractor and highway official and may be obtained, gratis, upon request addressed to the Calcium Chloride Association, 4145 Penobscot Building, Detroit, Michigan.

"NEW MEMBERSHIP" PLAN OF PITTSBURGH CHAPTER

The Pittsburgh Chapter of the Pennsylvania Society of Professional Engineers, has been actively engaged in a definite program to increase its membership this year by a canvass of every non-member registered engineer in that district, which group numbers approximately six hundred. The plan of this work is as follows:

FIRST: To divide the entire Chapter membership into twenty-one committees; each committee to have four members, to be termed a Sub-Membership Committee, with one of its members to act as Chairman.

SECOND: Cards, giving name and address, to be made for every one of the group of non-member registered engineers, (approximately 600 in number). About thirty of these cards will be given to each Sub-Committee Chairman, who, in turn, will distribute approximately seven to each member of his Committee, including himself.

THIRD: After the above items have been completed, it will be the duty of each Sub-Committee Chairman to arrange one meeting during the month, between Chapter meetings, at luncheon or some other place convenient to the Committee. The members of the Sub-Committee will invite two or more non-member registered engineers, (chosen from their cards), to this meeting. During the luncheon, the members will attempt to interest the non-members and persuade them to affiliate with the Pittsburgh Chapter.

FOURTH: The Membership Committee, comprised of five members, will then act as a clearing house for all of the Sub-Committees, in this way—The Chairman of the Membership Committee will assign four Sub-Committee Chairmen to each of his Committeemen, including himself, to receive reports of the Sub-Committees' meetings, and also to keep in contact with their activities.

FIFTH: At the regular Chapter meeting, the Chairman of the Membership Committee will make a general report for the month, and several of the Sub-Committee Chairmen will be requested to tell of their experiences.

Briefly, the plan will not place a burden on any particular member of the Chapter, as the Chairmen only need to keep in contact with three or four men of the various Committees during the month; and each member of the Chapter is only expected to contact a non-member once every two months.

On the other hand, if every member does his share, aside from the building of the Chapter, the members will have the opportunity to form new acquaintances, which may ripen into lasting friendships.

ALEX HUTCHINSON,
President, Pittsburgh Chapter.

COLLEGE AND UNIVERSITY ACTIVITIES

CHOOSING ENGINEERS

(From the New York Sun)

Cooper Union's engineering schools have room for but one-seventh of the 2,000 applicants who annually seek to enter. By means of stiff competitive tests in mathematics the schools each year select the most promising pupils, but even such tests permit many to enter who cannot reach the standards set up. Experience has shown that only from 45 to 65 per cent of an entering class remain to be graduated.

With the hope of preventing such waste the engineering schools are experimenting with tests in "engineering horse sense." Dean George F. Bateman explains that a brilliant mind is not in itself necessarily indicative of engineering competence. A prospective engineer needs, in addition, a mechanical flair and a "plodding sort of stamina" to succeed in a technical school. The "horse sense" tests, it is expected, will help disclose presence or absence of these qualities.

This is not the first time that tests of mechanical or engineering aptitude have been used in an effort to foretell the probable success of a new student. Cooper Union's experiment will help throw light on a problem which educational administrators and psychologists have been studying for many years: how to prevent the waste which results when a student fails to complete his course in an engineering or other technical school. No test thus far devised may be used as a positive index of success. Always there is in the mind of the examiner the fear that the test may fail to disclose some potential Edison, or Marconi, or Steinmetz.

Perhaps that is why engineering schools exist. In a way, each technical or professional school is a test in itself. It offers a student a chance to show his mettle. If he fails, there is waste, to be sure, but there seems to be no way of entirely eliminating chance from vocational preparation.

WITNESS STAND IS ROSTRUM FOR ENGINEERS; R.P.I. TRAINS THEM IN PUBLIC SPEAKING

(From the New York Times)

Troy, N. Y.—A visitor entering a certain lecture hall at Rensselaer Polytechnic Institute might wonder whether he was in a class room of a school of science and engineering or had wandered by mistake into a court room. He would see a man in a witness chair under cross-examination and a large group of spectators listening intently.

However, it would all be a part of a new method of training at Rensselaer to teach seniors to speak effectively in public and under difficulties that develop in actual experience outside the class room.

The man in the witness chair would be a student taking the part of an engineer serving as an expert witness in a court case. The "lawyer" would be a faculty member or a student, while the spectators would be other students. Through the use of questions based upon the minutes of actual court cases, the objective is to determine not only how well qualified the witness is but to teach him the proper poise and professional attitude that should be maintained under questioning which sometimes ruffles and confuses the expert witness.

In training the student to speak on his feet in public, even hecklers and meddlers who interrupt with prejudiced questions are provided. Other students, placed here and there in the audience, serve as bored listeners who twist and turn in their chairs and yawn. The test is not only to talk under such difficulties but to talk well enough to remove the boredom.

Homer Heath Nugent, Professor of English, who directs the training, says:

"One of the criticisms against the engineer and his training is that he is a poor speaker. Engineers are trained to think deliberately and quantitatively, which tends to make them slow of tongue. We are not trying to make orators out of engineers, but we are trying to make engineers effective spokesmen in their own right. If more were so trained, it would be better for their profession."

CONNECTICUT PROFESSIONAL ENGINEERS TO ADVISE PLANNING COMMISSION

An Act of the 1935 Connecticut Legislature conferred the power and authority upon the City Planning Commission of Bridgeport, Connecticut to plan for the future growth and arrangement within the city boundaries.

"No plot or a subdivision of land shall be filed or recorded in the Bridgeport Town Clerk's Office until it shall have been approved by the Planning Commission, or by the Common Council as provided in Section 10 hereof, and such approval shall have been entered in writing on such plot by the chairman or secretary of the commission. The territorial jurisdiction of the Planning Commission over the subdivision of land shall include all land located in the city."

"Before exercising the powers referred to in Section 7, (the above) the Planning Commission shall adopt regulations governing the subdivision of land within its jurisdiction, and may, from time to time, thereafter, modify, supplement and amend such regulations, provided that no such modification, supplement or amendment thereof, shall effect any project previously approved by said commission. Such regulations may provide; for the proper arrangement of streets in regulation to other existing or planned streets and with other features contained in the surveys and plans of the Planning Commission; for the establishment of building lines; for adequate and convenient open spaces for traffic, access of fire-fighting apparatus, recreation, light and air, and for the avoidance of an undue density of population. Such regulations may include provisions as to the minimum width and area of lots, as to the extent to which, and the manner in which, streets shall be graded and improved. Such regulations may provide that in lieu of the completion of improvements prior to the final approval of the plot, the commission may accept a bond in an amount and with surety conditions satisfactory to it, providing for and securing to the city the actual grading and improvement of streets within a period specified by the commission and expressed in the bond. The city is hereby granted the power to endorse such bond by all appropriate legal and equitable remedies. All such regulations and all such changes therein shall be published as provided by law for the publication of ordinances, and before adoption, a public hearing shall be held thereon by the commission, duly warned in the manner provided in Section 5 hereof."

The Bridgeport City Planning Commission consists of Raymond L. French, Chairman; Sidney Smith, Secretary; Wallace M. Bayliss, Robert H. Canfield and Harry Silverstone, with Engr. Joseph T. Woodruff its consultant and City Engineer Frederick E. Toquet acting in an ex officio capacity.

In drawing up the necessary land subdivision regulations as a control for putting this law into effect, they have requested constructive criticism from the members of the Connecticut Society of Professional Engineers.

The Board of Directors of the Connecticut Society of Professional Engineers, in acceding to the request of the Commission, appointed a Committee of Engineers, selected for their particular knowledge, from different sections of the State to give the Commission the help and constructive assistance that it requested. This Committee is known as "The Professional Engineers' Committee on Planning," and its members were specially selected with their past attainments that would fit them for able service on this Committee in mind. Engineers were selected who had previous records in planning, landscape, architectural, structural, surveying, road, city and management and they are:

Harry E. Harris of Bridgeport, Chairman; James D. Skinner of Bridgeport, Secretary; George L. Bilderbeck, New London; Joseph W. Cone, Greenwich; Robert T. Hedrick, Hamden; Leo Links, New Haven; Frederick C. Mead, Newtown; J. Gerald Phelan, Bridgeport; Herbert H. Scott-Smith, Waterbury; Leon E. Tuttle, Stamford; Clarence N. Wiley, West Haven; and Merton W. Hopkins, Old Greenwich.

This Committee was to have met Wednesday, July 14th at the Barnum Hotel, Bridgeport, Connecticut and on the same day a joint meeting at 7:30 P. M. in the Old Post Office Building, Corner of Broad and Cannon Streets.

NEWS OF STATE SOCIETIES

INDIANA

The Indiana Society of Professional Engineers, at their regular monthly meeting, July 9th, scored the advertising of engineering firms not legally registered and urged that such firms be reported to the Engineer's Registration Board. A report was given on the number of firms that had become registered since complaints were filed at the meeting last month.

Engineer Dan Pierce, chairman of the membership committee, reported on the increased membership which now totals over three hundred and fifty.

The recent sudden death of Charles Brossman, prominent Indianapolis Engineer, was reported and a resolution of recognition and appreciation for his life of outstanding service to the engineering profession was presented and adopted by the Society.

MISSOURI

BRIEF STATEMENT OF AIMS AND OBJECTIVES OF MISSOURI SOCIETY OF PROFESSIONAL ENGINEERS

The Society seeks to unite professional engineers of Missouri of all technical specialties, of all types of employment status and of all areas and sections of the state into a welfare society in order to more effectively protect their common interests and to promote these interests through publicity, personal contacts and the sponsoring of proper legislation.

The Society will publish an annual yearbook of members.

The Society seeks to maintain the professional status and defend the welfare interests of the employee as well as of the employer group of engineers, feeling that it would be a disrupting blow to the profession should any considerable number of the employee group deem it advisable to secure a trade status.

The Society will maintain a low dues status (annual dues of $2 for members and $1 for Junior members) to encourage the enrollment of all engineers.

BRIEF STATEMENT OF MEMBERSHIP QUALIFICATIONS

Members—Graduation from an approved four-year engineering course plus four years or more of active practice in engineering work, or eight years or more of satisfactory active practice in engineering work.

Junior Members—Graduation from an approved four-year engineering course, or four years of satisfactory active practice in engineering work.

Note: Proper allowance will be given for college work short of graduation.

PERMANENT ORGANIZATION MEETING (1st Annual Convention) PROGRAM

Missouri Society of Professional Engineers, Jefferson City, Mo.

Saturday, July 10, 1937

2:00 to 4:30 P. M. Hearing Room, Missouri State Highway Building. Semi-official informal discussion meeting lead by Engineers W. S. Conlon, Washington, D. C., Executive Secretary, National Society Professional Engineers, and C. A. Lashbrook, Oklahoma City, Okla., Secretary, Okla. Soc. Professional Engineers.

6:30 P. M. Banquet. (75c per plate) Basement McKinney's (Creedon's) Cafe. "Fate of Engineers Registration Bills Before the Missouri Legislative Sessions" by A. H. Baum, Jr., St. Louis, National Director for Mo. Soc. Professional Engineers.

8:30 P. M. Regular convention session, Auditorium Public Library.

1. "A State Society of Professional Engineers" by C. A. Lashbrook, Secretary, Okla. Soc. of Professional Engineers.
2. "Greetings and Message from the National Society of Professional Engineers," by W. S. Conlon.
3. Report of the Constitution and By-Laws Committee, by Wm. H. McDill, Jefferson City, Chairman.
4. Report of the Nomination Committee and election of officers for the year 1937-1938.

C. E. Bardsley, Mo. School of Mines, Box 88, Rolla, Mo. Secretary.

Wm. H. McDill Mo. Asphalt Ass'n, Jefferson City, Convention Secretary.

NEW JERSEY

HUDSON COUNTY CHAPTER

The Annual June Dinner of the Hudson County Chapter was a Testimonial to Peter F. Daly, C. E. Frank A. LaPointe, M. E. for outstanding Engineering Achievements and Service to Profession at Nelson's Town House, Union City, N. J., Thursday evening, June 24, 1937. Toastmaster Col. Hugh A. Kelly. Guest Speakers: Hon. William McGovern, Director of Parks and Public Property, City of Jersey City; Hon. Engineer Roscoe P. McClave, Assemblyman, Bergen County; Otto Cordes, President New Jersey Association of Power Engineers.

PETER F. DALY

Sixty-six years ago, on December 15, 1870, in the little town of Ridgefield Park, N. J. a boy was born who was later to become known as one of the foremost engineers in Hudson County.

Moving to North Bergen, in the upper end of the County when he was eight years of age, his childhood is an amazing tale of a boy brimful of energy and industry.

His formal engineering education was received in Cooper Union in New York City, from which he graduated with the degree of B. S. in Civil Engineering in 1897. He was awarded his full degree of Civil Engineer in 1908.

Besides being in private practice in the northern part of the county for 25 years, Engineer Daly held responsible positions with the original Rapid Transit Commission in New York City, the New York City Dock Department, and the County Engineering Department, where after 24 years of service he holds the title of Senior Construction Engineer.

Engineer Daly was also given the opportunity of serving the people of North Bergen as a Commissioner of that township, several years ago. Prized among his memories, was his election to the Presidential Electorial College in 1932.

Working always in the interest of the economic welfare of his engineering brotherhood, Engineer Daly was one of the principal organizers of the pioneer New Jersey Society of Professional Engineers and Land Surveyors, and served as its President. This society was later re-organized as the New Jersey Association of Professional Engineers and Land Surveyors, Inc., and with the New York, Connecticut, and Pennsylvania societies organized the National Society of Professional Engineers.

He was the first president of the newly organized Professional Engineers Club of Hudson County, 1934-1935, which is the Hudson County Chapter of the New Jersey Association and a unit of the National Society.

Engineer Daly is actively carrying on his work in the Club, today, as Chairman of the Legislative Committee and a member of the Public Relations, Membership and 1938 Convention Committee.

FRANK A. LaPOINTE

Engineer — educator — public citizen, can rightfully be the titles that we bestow on Engineer Frank A. LaPointe.

Born on April 9, 1864, in Oswego, N. Y., he came to Hoboken during his early childhood where he completed his education. He attended Hoboken High School, and there earned a scholarship to Stevens Institute of Technology, from which he graduated in 1886 with the degree of Mechanical Engineer. After graduation he took a teachers course in the Hoboken Normal School, received his teacher's certificate and returned to Hoboken High School, where he served as Vice-Principle. His educational work was continued in later years, having instructed in the National Guard Technology Division, in which he held a lieutenancy, and in Dickinson Evening High School in Jersey City, as instructor of power plants for nine years.

Engineer LaPointe may well be proud of his record as a public citizen. He was Clerk of the Board of the Hudson County Boulevard Commission, Assistant Postmaster of the City of Hoboken for two terms,

and in 1915 was elected to the State Legislature from his district in Hoboken.

He contributed notably to engineering works by serving in responsible capacities with the Boulevard Commission as Electrical Superintendent, the Lackawanna Railroad Company, the North Jersey Water Supply Company on the Wanasue Dam, and in private practice.

With Engineer Peter F. Daly, he was one of the principal organizers of the New Jersey Society of Professional Engineers and Land Surveyors, and as Chairman of the By-Laws and Fees Committee wrote the first by-laws, code of ethics and schedule of fees, revised editions of which are still recognized by the present State Association.

Engineer LaPointe is at present Chairman of the By-Laws and Fees Committee of the Professional Engineers Club of Hudson County, a member of the Ethics and Professional Practice, Membership, and 1938 Convention committees.

A meeting of the Convention Committee, to review the progress made to date and to formulate a schedule of activities for the coming months was held on Wednesday evening, May 19th. Chairman Engineer George Krueger charged each member with the responsibilities of performing a certain task.

Present plans call for a two-day convention, the first day of which will be devoted to technical discussions of the five major branches of engineering. The last day will be turned over to the business of the Association and will be followed by the annual dinner and dance.

THE N. J. STATE ASSOCIATION OF PROFESSIONAL ENGINEERS AND LAND SURVEYORS, INC.

A CALL TO ALL LICENSED ENGINEERS AND LAND SURVEYORS!

There has been a notable increase in the membership of our Association, but it is still far from that which is necessary to make it truly representative of the majority of the licensed engineers of the State.

In the New York Metropolitan Area, the C.I.O. is making a determined drive to unionize the engineering profession. This would remove the professional status and place engineers in the skilled technician class of labor. I am sure we do not desire such a change, but if engineers do not care to protect themselves and their profession by joining and making their state and National Associations truly representative, it is inevitable.

Read the article "Unionization of Engineers" on page 791 of the May 27th issue of *Engineering News Record*. It presents an alarming situation. Make up your mind if you want to remain a professional man and not a skilled laborer to join your local Chapter State Association and National Society. If enough of us feel this way, we will be able to continue to hold up our heads as members of an honorable profession and be protected in our rights better than any labor organization could protect us.

The Hudson County Chapter is progressing rapidly with its plans for our convention in January 1938, and will produce an annual meeting that will be an inspiration to all engineers. There will be many questions of vital interest to the engineers of this State to be settled at this convenion. The vote on all questions is by Chapter and the Chapter vote is predicated on the number of members in good standing (are your dues paid?) in the Chapter. Do your bit for yourself and your profession. See that you are in good standing so that your opinions will be backed by a vote. Make arrangements to attend the Convention and get the benefit of the debates which will arise on subjects of importance, and the inspiration which you cannot fail to get from the meetings.

By BEALE M. SCHMUCKER,
President.

CHAPTER NOTES

Passaic: Held its last regular meeting on April 22d. The 17th Annual Dinner and 2d Regional Get-to-Gether was held on May 6th at the New Colonial Inn, Singac, N. J. A record turnout of Engineers from all parts of the State enjoyed a good dinner, snappy speeches, and what a floor show! During the summer Passaic Chapter plans to hold several picnics and golf tournaments to keep the boys to-gether. Convention News congratulates a live Chapter that is doing much to build up a strong State Association.

Hudson: As we go to press, the Professional Engineers Club of Hudson County is making last minute arrangements for their annual dinner, which will be held as a testimonial to Engineers Peter F. Daly and Frank A. LaPointe. Engineer Daly is Past president of the original New Jersey Society of Professional Engineers and Land Surveyors, and with Engineer LaPointe, wrote the first code of ethics and schedule of fees.

Bergen: Secretary Arthur Noack writes that Bergen County too, is taking its place in the activities of the State Association. Our snooping reporter tells us they were enjoying an interesting lecture on the manufacture of aeroplanes which was to be concluded with sound pictures of planes in action, but when the gentleman was ready for that part of the program and opened his trunk, there weren't any films! The next meeting of the Chapter is scheduled for the first Friday in September.

Minutes of meeting of the Executive Board and Board of Trustees of the New Jersey Association of Professional Engineers & Land Surveyors, held at the Hotel Douglas, Newark, N. J., June 22, 1937.

Those present included President Beale Schmucker and Engrs. Trimpi, Randolph, Goodkind, Glannon, Sleeper, Hitchen, Pray, Reeves, Kreuger, Wise, Brown, McKee, and Weeks.

The Monmouth County Chapter has addressed a letter to the County Bar, Medical and Architects organizations requesting a joint-meeting to consider the C.I.O. threat.

There was presented a motion that a committee of three be appointed by the President to meet with a similar committee of three from each of the following groups for a round table discussion of the C.I.O. activities insofar as they affect the Professional man:

Architects, Medics, Bar, Accountants and Dentists.

In support of the motion it was stated that to act as a bargaining agency the Association would have to buck two strong labor groups, the best procedure to follow along with the other professions and get exemption from C.I.O. activities.

Committee—Chairman, Morris Goodkind, Russel Wise, Victor Gelineau.

There was presented a motion that a committee of three be appointed to study and investigate the C.I.O. situation as exists, the Wagner Act and how they both affect the Professional Engineer in this State.

Committee—Chairman, C. Geo. Kreuger, Glenn Reeves, Peter H. Glannon.

A communication relative to the reaction of the State Board in rendering their support in the support of a Code of Ethics and with it a Fees and Salary Schedule was read by the Secretary.

Within many Chapters the schedules as now set up are too high and it is each chapter's duty to revise and set up a Fees and Salary Schedule for their own specific county.

There was presented a motion that a committee of three be appointed to meet with the State Board to present the case of the Association for gaining the support of the Board in support of enforcing the Code of Ethics and Fees Schedule.

Committee—Chairman, Hugh C. Clarke, Chester Mueller, Geo. F. Randolph.

The Essex County Chapter is working with the Telephone Co., in reference to engineers listings in the telephone book and will endeavor to report back at the next meeting.

There was presented a motion protesting the taking of man from State-wide Projects or any other W.P.A. activity to perform work of private practitioners within any municipality.

Copies to be sent to Mrs. Elizabeth C. D. Vann and Arthur Noack.

Motion passed unanimously.

RESOLUTION

WHEREAS, Basic Hydrologic data are essential in the planning, design and construction of all hydraulic engineering projects, such as public water supplies, hydroelectric power plants, stream regulation and flood control projects, irrigation undertakings, bridge and highway design, etc.; and

WHEREAS, Great loss of life, money and property have resulted both from under-design and over-design of projects, owing to the inadequacy on basic hydrologic data; and

WHEREAS, the collection and desemination of such basic data is a regional undertaking transcending the geographical limits of local political sub-divisions and is therefore a more legitimate field for the expenditure of federal relief funds than are projects of purely local interest and responsibility;

THEREFORE, BE IT RESOLVED, That the New Jersey Association of Professional Engineers & Land Surveyors endorse the general plan of the National Water Resources Committee for the collection of basic hydrologic data throughout the nation, and

BE IT FURTHER RESOLVED, That the New Jersey Association of Professional

Engineers & Land Surveyors recommends that in the allocation of relief funds for projects preference be given to projects of State-wide or Regional scope, including State-wide Geodetic Control Surveys and co-ordinated Stream and Shore-line Surveys rather than to projects of purely local interest that are properly the responsibility on local political sub-divisions and the cost of whch should properly be borne by the local beneficiaries; and

BE IT FURTHER RESOLVED, That a copy of this RESOLUTION be transmitted to the Hon. Harry L. Hopkins, W.P.A. Administrator at Washington, to State W.P.A. Administrator Ely, at Newark, N. J. and to U. S. Senators Moore and Smathers of the N.S.P.E., for their information and support.

It was reported that the Monmouth County Chapter had now taken in men from Ocean County and the name of the local organization changed to the Monmouth-Ocean Professional Engineers Society.

The Union County Chapter have now taken in the men from Somerset County.

The Middlesex County Chapter is meeting regularly each month.

The Bergen County Chapter is meeting regularly and functioning.

There was submitted a report of the Membership Committee with the statement that efforts will start shortly for the organization of a Mercer County Chapter.

REPORT OF MEMBERSHIP CHAIRMAN

April 8—Essex Chapter was visited and plans outlined to Mr. H. J. Whittaker, Membership Chairman.

April 26—Hudson Chapter was visited and plans submitted to Mr. James A. Foley.

April 29—Bergen County Chapter failed to meet as scheduled, I learned upon arrival.

Union County Chapter is working out my plans through Mr. Arthur A. Hobby—our Membership Chairman.

In all my contacts I have been very much pleased with the efforts and results. Each membership Chairman has obtained in their own individual way to secure new members.

Respectfully submitted,
RUTLEDGE PRAY.

Wise—Presented a motion that Vice-President Morris Goodkind of the N. S. P. E. be recommended to the office of President of the N. S. P. E. by the New Jersey Association.

Motion passed unanimously.

President Schmucker stated that increased membership is most important to the success of the Profession and that every licensed man's efforts should be to increase that membership.

Meeting adjourned at 12:00 P. M.

E. F. WEEKS,
Secretary-Treasurer.

NEW YORK

FINAL REPORT ON 1937 LEGISLATION AT ALBANY

By Dr. D. B. Steinman, June 17, 1937

Correction: Under the heading of endorsed measures that were enacted, item No. 1 should be omitted. This was a proposed amendment to the Architects' Law to require professional supervision of construction by either a registered engineer or architect; but this desired provision was deleted from the bill (Feld Bill, Senate Int. 1224, Print 1375) just before final passage in the Assembly. The bill as finally enacted contains only an amendment relating to the National Council of Architectural Registration Boards. (The error in the report which appeared in the June-July issue of THE AMERICAN ENGINEER is chargeable to a temporary interruption of service at the State Society's legislative headquarters at Albany during the final period of illness of the late Arnold G. Chapman.)

Revised Summary: Two bills endorsed by the profession were enacted into law, and *all* of eight bills opposed by the profession failed of enactment.

NEW YORK COUNTY CHAPTER NEWS

Since the State Society Meeting on May 22, the New York County Chapter has been preparing for a intensive membership campaign. Suggestions have been presented to headquarters for a standard form of membership application card as well as for material for a booklet to be used in the State Campaign. Engineer Yates resigned as Chairman of the Membership Committee and Engineer Deutsch has been appointed to that position. An announcement will be made shortly to the New York County members concerning plans for their part in these activities.

Engineer John C. Fleming was appointed to represent the Chapter at a meeting of the Municipal Civil Service Commission for reclassification of the engineering service.

Engineer Fleming was also asked to review the recommendations of the Onondaga County Chapter concerning salary schedules and classifications of engineers in the State Civil Service.

An invitation was received from R. H. Shreve, Director, New York District of the American Institute of Architects, to attend a meeting at the Uptown Club in New York City on June 30, to discuss legislative service in matters affecting New York State Architects or Engineers. Dr. D. B. Steinman was appointed to represent the Chapter at this meeting and presented a brief statement of the service which the New York State Society of Professional Engineers is prepared to offer. This statement is to be made a part of a report which will be sent to all those who attended the meeting, as well as others who have indicated interest. As a result of these preliminary negotiations, Dr. Steinman was asked by Pres. Roche to represent the State Society at future meetings of the group.

OHIO

CLEVELAND SOCIETY OF PROFESSIONAL ENGINEERS

Annual Report; Election of Directors and Officers

The annual meeting for 1937 was held May 11, 1937 at Case Club, East 107th Street and Deering Avenue.

Preceding the meeting, there was a dinner, also at the Case Club.

Speakers at the meeting were Arthur V. Sheridan, President of the National Society of Professional Engineers, and J. R. Burkey, President of the Ohio Society of Professional Engineers. Invitations were extended to the Registration Board; Officers of nearby County Societies; Dr. Wm. E. Wickenden, President of Case School of Applied Science; Mayor Harold H. Burton and State Senators Keith Lawrence and Tom L. Gallagher.

ELECTION RETURNS

The results of the ballot for Directors and of the Board election of officers were as follows:

Directors Elected By Ballot

A. V. Dollard—Civil
H. R. Hawgood—Mechanical
M. S. Douglas—At Large
J. O. McWilliams—At Large

Officers Elected by Board

President—George E. Barnes
Vice-President—H. Robert Lehman
Secretary—Walter L. Leach
Treasurer—W. D. Young

Vote on Changing the Society Name to Cleveland Society of Professional Engineers: For—169; Against—17, carried.

Amendment to Increase Dues: For—104; Against—80, lost.

The Constitution requires that amendments to become effective must receive a two-thirds majority of all votes cast. Therefore the official name of the Society is now the "Cleveland Society of Professional Engineers" and the Dues remain at $2 per year. The two-thirds requirement was not met on the Ballot for the Amendment increasing Dues.

SECRETARY'S REPORT 1936-37

The membership of the Cleveland Society of Professional Engineers is now 461, an increase of 66 members over last year. This excellent showing is the result of a well planned and executed campaign by Bob Duncan's Membership Committee. One of the members of this committee is Bob Lehman our new Vice-President, who is also a very active member of the Sub-Committee on Civil Service.

An analysis of the membership discloses a very balanced condition in the distribution of the membership. The membership can be classified as engineers employed in industry, consulting engineers and governmental engineers. Proper recognition to all groups is essential for the development of any Society and particularly in the Cleveland Society of Professional Engineers. The following estimates are enlightening and should be useful in determining the policy of the Society in the future.

	Society Members
Members employed in industry	190— 41%
Members engaged in consulting work	124— 27%
Members employed by the Government (City, County, Federal and State)	147— 32%
TOTALS	461—100%

During the year the Board of Direction met eight times and the various committees had thirty-five meetings. Attendance at these meetings averaged well over seventy-five per cent. Last August ninety-six mem-

bers attended the Golf Party held at Columbia Hills. On April 8, 1937 eighty members were present at the dinner meeting held at the Case Club.

Expenses for the office of Secretary including typing, mailing, transportation, committee luncheon engagements and incidentals averaged $7.50 per month during the year.

G. E. Bing, Chaiman, 920 Standard Bldg., Prospect 5211

C. A. Knieling, Vice-Chairman, 1324 W. Third St., Prospect 5000

R. T. Callaghan

K. D. Brumbaugh

A. W. Battles

F. Erosky

E. Roll

S. A. Bauer, Member of Board

PENNSYLVANIA

PITTSBURGH CHAPTER

The Pittsburgh Chapter will not hold a regular meeting during July or August.

The next Chapter meeting will be held on Thursday evening, September 16, 1937.

The new members for the Pittsburgh Chapter during the past month are: Engineers John J. Jacob, Jr., Peoples Gas Co., Pittsburgh; Raymond I. Lachman, 711 Hale St., Pittsburgh; Raymond T. Gillis, 901 Koppers Bldg., Pittsburgh; Paul G. Shanor, 1147 Koppers Bldg., Pittsburgh; Ralph George Rodgers, 2409 Hobson St., Brookline; A. E. Duckham, 246 South Aiken Ave., Pittsburgh; and Everett A. Olson, 265 Cascade Road, Forest Hills, Pa. Total Chapter Membership—118.

IT COMES UP HERE

Engineer Samuel W. Marshall of Philadelphia, has been recently appointed Chief Engineer of the State Highway Department. Engineer Marshall is a member of the Philadelphia Chapter, Pennsylvania Society of Professional Engineers.

Engineer Benjamin H. Aires gave a talk to the boys of Overbrook Junior High School on June 10, on the subject, "The Profession of Engineering." This was a part of the program of the Vocational Guidance Committee of Pittsburgh Kiwanis.

The Pittsburgh Chapter Publications Committee indorses this kind of Publicity. Particularly are we in favor of letting the membership know what publicity is being put out. Here it is:

To the GOVERNMENTAL AUTHORITIES in Pennsylvania:

To avoid legal entanglements and to insure the public welfare, PUBLIC WORKS should be PLANNED, DESIGNED, and CONSTRUCTION and OPERATION SUPERVISED only by PROFESSIONAL ENGINEERS who have been legally registered as such under the Laws of the Commonwealth. Latest official information as to the registration status of any engineer can be had by addressing:

State Registration Board for Professional Engineers, Harrisburg, Pa.

DR. HENRY PARKER HAMMOND

PENN STATE NAMES ENGINEERING DEAN

Dr. Henry Parker Hammond Succeeds Dr. R. L. Sackett as Department Head

State College, July 18.—Dr. Harry Parker Hammond, head of the department of civil engineering at the Polytechnic Institute of Brooklyn, N. Y., and past president of the Society for the Promotion of Engineering Education, today was appointed dean of the School of Engineering at the Pennsylvania State College.

The appointment was announced by President Ralph D. Hetzel after approval by the executive committee of the college board of trustees.

Dr. Hammond succeeds Dr. Robert L. Sackett, dean-emeritus of the School of Engineering, who retired July 1 after twenty-two years of service.

A member of numerous engineering societies, Doctor Hammond is known for his accomplishments in engineering education. He represents the Society for the Promotion of Engineering Education on the Engineers Council for Professional Development and is a member of the council's committee on engineering schools which is examining and accrediting engineering colleges in the United States.

Born in Asbury Park, N. J., December 21, 1884, Doctor Hammond attended public schools in Atlantic Highlands, N. J., and Wilmington, Del. He subsequently entered the University of Pennsylvania from which he was graduated in 1909 with the degree of bachelor of science in civil engineering. He was awarded the degree of civil engineer by the University of Pennsylvania and the honorary degree of doctor of engineering by the Case School of Applied Science.

Taught in Brooklyn 25 Years

Immediately after he was graduated from the University of Pennsylvania, Doctor Hammond was appointed instructor of civil engineering in the university, a position he held for two years. In 1911-1912 he occupied a similar position at Lehigh University. In 1912 he was appointed assistant professor of civil engineering at the Polytechnic Institute of Brooklyn, where he has served continuously as assistant professor, of sanitary and hydraulic engineering, and, since 1927, professor of civil engineering and head of the department.

In 1913 he married Miss Margaret Raymond daughter of the late Dean William G. Raymond of the State University of Iowa.

Doctor Hammond's employment in professional practice in which he has engaged simultaneously with his teaching, has included work with the American Bridge Company, the Board of Water Supply of the City of New York (Catskill aqueduct project); J. A. Colby, Alexander Potter and Andrew Provost, Jr., consulting engineers; the Miami Conservancy District in Ohio; and with other organizations. He has been employed in connection with surveys of institutions and systems of higher education including those of Brown University, the Catholic University of America, and the states of Georgia and Missouri.

In 1936-1937 he was president of the Society for the Promotion of Engineering Education. Previously he had served the society as associate director of the investigation of engineering education between 1924 and 1929; director of the summer school for engineering teachers from 1927 to 1933; member of the society's council from 1927 to 1930; vice-president in 1934-1935, and as a member or chairman of a number of its committees, including the committee on graduate study, which made a comprehensive survey of graduate work in engineering in cooperation with the United States Office of Education.

He is a member of Tau Beta Pi, Delta Kappa Pi, Pi Kappa Phi, the American Society of Civil Engineers, the American Association for the Advancement of Science, and the American Association of University Professors.

During the World War, Doctor Hammond was chairman of the local board for Division 58, New York City, under the Selective Service Act.

Doctor Sackett, who retired July 1, had been dean of the School of Engineering at the Pennsylvania State College since 1915. Recently he was awarded an honorary degree of doctor of engineering at the University of Michigan, his Alma Mater, for his professional accomplishments.

HUGH L. COOPER, ENGINEER DIES; BUILT HUGE DAM FOR SOVIET

From the Herald Tribune

Stamford, Conn.—Hugh Lincoln Cooper, consulting engineer for the Soviet government's huge Dnieperstroy hydro-electric project, who designed, financed and built the great Keokuk Dam across the Mississippi River, died of arterio sclerosis June 24 at his estate, Outaways.

Mr. Cooper, who was seventy-two years old, had returned May 29 from an inspection tour of his latest project, the hydro-electric development of the New-Kanawha Power Company at Glen Ferris, W. Va.

Activity Covered World

One of the nation's outstanding authorities on hydraulic engineering as applied to power development, Mr. Cooper had designed projects producing more than 2,000,000

horse power and costing $200,000,000 in the United States, Canada, Soviet Russia, Chile, Mexico and Egypt.

To modern Russians he was the pre-eminent American. Stalin chose him as builder of the Dnieper Dam after scouting the world for an engineer capable of executing the most ambitious project of the Soviet government's first five-year plan.

Since the days of Catherine the Great, Russians had dreamed of a great dam and canal in the Dnieper River which would carry transportation around the falls 290 miles north of the Black Sea, making navigation possible for large ships into the rich territory of the Ukraine. Finally, under Soviet impetus, the project got under way in 1927 and Mr. Cooper was placed in full charge.

Decorated by Stalin

Mr. Cooper stayed in Russia six years and became one of the few foreigners to win the complete confidence of Stalin. At the completion of the project in 1933 he received the Order of the Red Banner, the Soviet's highest award to a foreigner.

His workers on the dam were mostly peasants of the Ukraine, who knew nothing of construction machinery and had to be taught with great tact and patience. Mr. Cooper had foreseen the inexperienced character of the labor and had made his plans so simple as to involve the least possible mechanization.

Favored Russian Recognition

The Dnieperstroy project, with its 756,000 horsepower capacity, was the world's largest electric plant prior to the completion of Boulder Dam.

Mr. Cooper returned to America an ardent advocate of Russian recognition. He was convinced that the Soviet Union had scrapped communism in favor of state capitalism, but that the nation was still attempting "the most audacious experiment the world has ever witnessed" and that the results would demand "very careful study by proponents of private ownership."

After the establishment of diplomatic relations between the United States and Soviet Russia in 1933, Mr. Cooper was cited by Maxim Litvinov, Soviet Commissar of Foreign Affairs, for his help in the fight for recognition.

Maintained His Interest

In recent years Mr. Cooper maintained his interest in the Soviet experiment. His final visit to Russia came last summer, when he flew to Moscow during a business trip to London. He was a director and former president of the American-Russian Chamber of Commerce.

Mr. Cooper, who was born in Sheldon, Minn., began his career as a bridge builder. Just out of high school, he went to work for a Chicago firm of structural iron workers. For seven years he built bridges, first as a laborer, then as a boss, finally as foreman of the Chicago plant.

Hydraulic engineering was still in the water-wheel stage when Mr. Cooper decided the field of engineering was too crowded and that there was more of a future in putting water to work than crossing it. There was hardly any such thing as hydro-electric engineering, for the task of making electricity had just recently begun.

Dammed the Mississippi

Mr. Cooper was one of a few far-sighted men who saw that rivers could be put directly to work generating electricity. He worked for a year with a water wheel company in Dayton, Ohio, and then entered the hydro-electric field.

His first job to attract national interest was the damming of the Mississippi at Keokuk, Iowa. This project marked a change in hydro-electric practice, for to that time men had thought of water power mostly in terms of narrow, rapid rivers.

Mr. Cooper got the necessary backing and built the dam at a cost of $27,000,000. Immediately successful from an engineering standpoint, it soon became equally successful as a business venture and demonstrated to the world that the great water power projects of the future need not seek new Niagaras.

Built Niagara Falls Plant

Since the success of the Keokuk project, Mr. Cooper's biggest jobs, with the exception of a plant he installed at Niagara Falls, were the damming of wide, slow rivers. He built the Wilson Dam at Muscle Shoals, on the Tennessee River, and the dam across the Susquehanna at Holtwood, Pa. He was engaged by the Egyptian government as a consultant on power and irrigation, and in 1929 supervised changes in the Assuan Dam on the Nile.

Mr. Cooper was president of the engineering firm of Hugh L. Cooper & Co., Inc., of 101 Park Avenue. His clubs included the Union League and the New York Yacht Club. He held honorary degrees from the University of Missouri, Syracuse University and Parsons College.

During the World War, Mr. Cooper served in the Engineering Corps with the rank of colonel. He was chief engineer at Bordeaux, France, during military port construction.

PROFESSIONAL ENGINEER—VOCATIONAL ENGINEER

To quote Thomas G. Thurston, Secretary of the National Licensing Law Committee of the Power Engineers,

"Frankly, the engineer, whether professional or vocational, has played the part of the American Cinderella entirely too long. The Professional Engineer has developed and perfected the modern machine; the operating engineer (I am talking now about the man worthy of the name and there are a lot who are not) supervises and coordinates its performance, in its service to the public. We should get together and demand our birthright.

Proper legislation is the most effective road to public recognition. The charlatan in the Professional field should be eliminated. Respect for the name should be promoted. Use of the name in all its hybrid variations by those who have no right to it, should be barred. The incompetent should be eliminated from the operating field. A continuous campaign of public education of what the engineer is, and what he does, should be promoted. If we all get together, we can do this in a bangup style. But first we must become real friends. Then we can go places."

A recent statement made by Engineer Harry E. Harris, past President of The Connecticut Society of Professional Engineers says,

"As a basic understanding from which to start, the following should be clearly understood and accepted:

"That the two groups are distinct and separate and that there is no wish on the part of either side to merge or overlap, but that each desires to produce a clear knowledge of such distinction in law, in the public mind and, of course in the minds of their own members.

"I feel that the above is the most important and basic. The Professional Engineers cover too wide a field to wish to encroach on the operating territory, and the requirements for Professional License are such that but very few in the Operating Group could qualify.

"Certainly individuals may be so qualified as to belong with both groups, but such cases are relatively rare, and there is no reason in such circumstances, why these individuals should not join both and be licensed in the two fields, any more than one individual should not be both a Registered Professional Engineer and an admitted lawyer, or perhaps a minister of the gospel and a doctor at the same time.

"It is to the best interests of both distinct groups to work together on general questions such as the misuse of the term 'Engineer' in any way, laws affecting either group, and where they come in contact in the operating and installation fields.

"Educational work and Publicity along these lines on the part of Associations, Journals, License law Committees and leaders can well disseminate such knowledge to good advantage."

HERE'S A FREE ADVERTISEMENT

"BUFFALO FORGE COMPANY COOPERATES WITH ENGINEERS

Professional Engineers generally and particularly those in consulting practice should know and appreciate the business policy of the Buffalo Forge Company indicated by the following announcement of that Company dated March 23, 1937.

"We feel that the buyer of a commercial comfort cooling system would benefit in most cases by employing a consulting engineer to prepare plans and specifications. Believing this to be in the best interests of the industry, our future advertisements will include the caption: SEE YOUR CONSULTING ENGINEER."

This is in striking contrast to some manufacturers and contractors who advertise to include engineering service and often endeavor to create the impression that this service is without cost to the purchaser or the client. Engineers specifying equipment should show their appreciation of the above policy as announced whenever an opportunity occurs.

Many of the manufacturing chemists producing proprietary articles for medical use have been advertising "Consult your Physician" but this is the first noticed in the engineering field."

PROFESSIONAL DIRECTORY

F. HERBERT SNOW
Consulting Engineer
Telegraph Bldg. Harrisburg, Penna.

Robert Hall Craig
Consulting Engineer
Public Utility » Industrial » Municipal
Design » Finance
HARRISBURG, PENNA. 57 William Street, N. Y.

Vesper A. Schlenker
Consulting Engineer
"Acoustics of Buildings"
Sound Proofing — Surveys, Measurements
Vibration Control — Specifications
Electro-Acoustic Systems — Original Design
420 Lexington Ave., NEW YORK CITY

Harry E. Harris
CONSULTING ENGINEER
Administrative Controls Manufacturing Methods
Development - Design - Equipment
Systems - Standardization
BRIDGEPORT, CONN.

Wm. H. Dechant & Sons
Frederick H. Dechant, CE-ME
Miles B. Dechant, Archt.
Reading, Pa.
WATER WORKS SEWAGE DISPOSAL
POWER » PUBLIC BUILDINGS » APPRAISAL

JOHN S. SHOLL
Consulting Engineer
WILMINGTON DELAWARE

Why Isn't
YOUR NAME
on this page?

FRAZIER-SIMPLEX, INC.
Washington Trust Building
WASHINGTON, PA.
Engineers to the
GLASS INDUSTRY

Why Isn't
YOUR NAME
on this page?

D. B. STEINMAN
Consulting Engineer
BRIDGES
Design » Construction » Investigation
Reports » Strengthening Advisory Service
117 Liberty Street NEW YORK CITY

ADVERTISING RATES

The American Engineer

General Advertising

1 page	$75.00
½ page	50.00
¼ page	25.00

Classified Advertising

1 inch	$3.00

Preferred Positions

Outside back cover (black and one color)	$100
Inside covers (b'ack and one color)	75
Center spread (black and one color)	150

Terms

Yearly contract (12 times) 5% discount
Agency discount 15%
Cash discount, 10 days .. 2%

This is a Good Spot
for
YOUR
Personal Card

THE WAYNE LABORATORIES

Chemists, Bacteriologists, Technicians, Consultants

Research and Special Problems

Complete Physical Testing Department

Compression, Tension and
Transverse Tests

Accelerated Weathering and
Corrosion Studies

17 E. Main Street Waynesboro, Pa.

Weight, more weight than the bridge was originally designed for, or more than it will now carry safely, is the crux of the problem presented by increased traffic and larger live loads.

To the problem of weight Aluminum is a direct answer.

Strong, light alloys of Aluminum, used to replace needlessly heavy floor systems, walkways, and railings materially reduce the dead load. The original structure is saved for years of extra use. Cost is only a fraction of the total for a completely new bridge.

Successful installations demonstrate the benefits derived: 1. Traffic capacity is increased; 2. Permissible live load is increased; 3. Roadway surface is improved; 4. Stresses are reduced. In short, the bridge is again made good for what bridges are good for. That is sound engineering. ALUMINUM COMPANY OF AMERICA, 2112 Gulf Building, Pittsburgh, Pennsylvania.

ALCOA · ALUMINUM

Reg. U.S. Pat. Off.